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**Annual (October) 2008  
Groundwater Monitoring Report  
for the  
Rose Township-Demode Road Site  
913 Demode Road  
Holly, Michigan**

*Prepared For:*

Rose Township Settling Defendants  
800 Chrysler Drive  
Auburn Hills, MI 48326

*Prepared By:*

**AECOM**

36133 Schoolcraft  
Livonia, MI 48150

**March 2009**

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## 1.0 INTRODUCTION

This groundwater monitoring report documents field activities and analytical results from the October 2008 (Annual) groundwater sampling activities conducted at the Rose Township Demode Road Site (Site), located at 913 Demode Road, Holly, Michigan (Figure 1). Groundwater level measurements were collected from one-hundred twenty-eight groundwater monitoring wells and three active and two inactive extraction wells on October 17, 2008. A total of forty-nine groundwater monitoring wells were purged and sampled between October 20 and 29, 2008, using either low-flow pumping methods or by use of natural artesian conditions. In addition, samples were collected from four active and two inactive extraction wells during the October 2008 annual sampling event. This report summarizes the methods and procedures used during the monitoring event, the results of the October 2008 field activities, and an analysis of the current groundwater extraction system and modifications made to improve operation.

### 1.1 SITE DESCRIPTION AND BACKGROUND

The Site is comprised of approximately 110 acres and is located in the northwestern corner of Oakland County. Regional topography consists primarily of broad flat plains with numerous shallow depressions and valleys occupied by lakes, ponds, wetlands, and streams. These plains are traversed by a series of southwest to northeast trending ridges formed by glacial end moraines. The topography of Oakland County and all of southeastern Michigan is dominated by glacial features created during the retreat of the Saginaw lobe of the Laurentide ice sheet during the Wisconsin Glacial Stage (approximately 10,000 to 20,000 years ago). The regional elevation ranges from approximately 630 to 1,220 feet above mean sea level (ft. AMSL). The area receives on average 30 inches of precipitation per year. Average monthly temperatures range from 23 °F (January) to 72 °F (July).

The Site was used as an unlicensed landfill for industrial wastes from the mid-1960s until approximately 1971 when Rose Township brought a second law suit against the waste hauler and the land owner. The illegal disposal activities were conducted on approximately 12 acres of the upland portion of the Site. In 1979 the Michigan Department of Environmental Quality

(MDEQ), formerly the Michigan Department of Natural Resources (MDNR), conducted a drum survey on the property and identified approximately 1,500 drums on Site. A large number of these drums were severely deteriorated and had apparently released their contents. Based on this survey and the subsequent sampling of the identified drums, an interim remedial action was conducted by the MDEQ to remove the drums. By July 1980, more than 5,000 drums were identified and removed from the Site by the MDEQ.

Since 1980, the Site has been the subject of numerous investigations and remedial response activities, as summarized below:

- 1980 to 1982 – Initial Site investigation conducted by the MDEQ.
- 1982 – Site becomes part of the Federal Superfund program. A Remedial Investigation/Feasibility Study (RI/FS) is initiated.
- 1986 – The MDEQ conducts additional groundwater delineation activities.
- 1987 – Cleanup plan selected. Record of Decision (ROD) issued requiring Incineration of polychlorinated biphenyl (PCB) contaminated soil and extraction and treatment of contaminated groundwater with discharge to wetlands.
- 1989 – ROD Amendment #1 - Soil Flushing is added to the ROD as a soil remedy.
- 1992-1993 – Incineration of 50,000 cubic yards of PCB contaminated soil.
- 1995 – ROD Amendment #2 – Soil vapor extraction (SVE) chosen for remaining contaminated soils. Target cleanup levels (TCLs) for volatile organic compounds (VOCs) in soil were also amended.
- 1995 – 1996 – Both SVE and groundwater extraction/treatment systems designed and constructed.
- 1997 – Earth Tech is subcontracted for the operation, maintenance, and monitoring (OM&M) of the Site.
- 2002 – Dissolved vinyl chloride concentrations detected beyond the groundwater system capture zone.
- 2004 – Dissolved vinyl chloride concentrations detected at northeast boundary of the Site. Earth Tech begins off-Site delineation activities.
- 2005-2007 – Hydrogeologic Study is conducted to determine the interaction between surface water and groundwater at the Site.
- 2006, 2007 – Hot Spot Investigations conducted to evaluate if source soils still existed that may be contributing to the dissolved chlorinated VOC plume.

## 1.2 GEOLOGY/HYDROGEOLOGY

The Site is located on a glacial end-moraine and represents a local topographic high which serves as a local recharge area for the shallow aquifer. Site topography ranges from approximately 950 to 1,100 ft. AMSL. The surface water runoff from the Site drains to wetland areas that border the Site on the northeast and west.

The regional geology consists of approximately 250 to 300 feet of glacial drift underlain by bedrock comprised of the Mississippian-aged Coldwater Shale and Marshall Formation (sandstone unit). The glacial drift is composed of complex stratifications of clay tills, outwash deposits (sand and gravel), and ice contact deposits (silts and silty clays). Lacustrine deposits (silt and clay) are also common in the topographically lower lying flat areas and are gradational and interbedded with glacial outwash deposits.

The shallow Site geology consists of complex interbedded glacial deposits (silt to gravelly sands) underlain by clay till that appears to be laterally continuous across the Site and surrounding area. This till layer is considered the base of the aquifer of interest at the Site. In the northeastern and western portions of the Site (the topographically lower areas comprised of wetlands) these water bearing silts and sands are overlain by interbedded lacustrine clays. These interbedded lacustrine clays produce semi-confining conditions for the aquifer causing wells in the lower elevation portions of the Site (areas below approximately 990 ft. AMSL) to flow under natural artesian pressure.

The Site is within an area of complex hydrogeology. The soil below the Site is composed of interbedded clay, silt, sand and gravel. The percentage of each material composing the aquifer affects the direction and velocity of groundwater flow, resulting in changes in the direction and nature of the dissolved contaminant plume. Groundwater flow is generally from south to north across the southern two thirds of the Site, toward well DNR-7 (Figures 2 and 3). This portion of the Site, located on a topographic high, acts as a local groundwater recharge area. North of well DNR-7, on the northern third of the property, there is a marked decrease in ground surface and aquifer elevation. Just north of this area the aquifer becomes artesian due to the presence of interbedded lacustrine clays and a corresponding drop in topography. The aquifer pinches and

thins out toward the north, which corresponds to a change in groundwater flow direction to the east-northeast towards the wetlands that are present on the northeastern portion of the Site.

### 1.3 STATUS OF GROUNDWATER INVESTIGATIONS

A dissolved VOC plume has been detected in the water bearing zone beneath the Site. Trichloroethene (TCE) and its degradation products, *cis*-1,2-dichloroethene (*cis*-1,2-DCE) and vinyl chloride (VC), are the most prevalent VOCs in groundwater beneath the Site. Historically, TCE has been encountered mainly in wells on the south end of the Site near the existing building. VC has been observed in wells near the area of the on-Site building extending to, and beyond, the northeast property boundary. To monitor the groundwater plume at the Site, thirty-two monitoring wells are sampled quarterly with an additional twenty-one wells generally sampled on an annual basis.

The potential for off-Site groundwater contamination was considered based on the observed VC concentrations in groundwater at the Site property boundary, and the detection of low concentrations of VC in residential supply wells at 510 and 487 Demode Road. The residents of 510 Demode utilize bottled water for drinking, and both residential wells are sampled on a monthly basis. Concentrations of VC have been slowly increasing in the well at 487 Demode Road since it was first detected on April 11, 2007. The most recent sample collected from the well at 487 Demode (October 13, 2008) contained VC at 1.7 µg/L. VC concentrations in samples from the well at 510 Demode Road have ranged from 0.4 µg/L (6/9/03) to 6.2 µg/L (7/24/08) since 2003.

To investigate whether this VC originates at the Site, eight monitoring wells, including GW-22S, GW-22I, GW-22D, GW-23S, GW-23I, GW-23D, GW-24I, and GW-24D were installed off-Site on the opposite side of the wetlands east of the Site (Figure 1). These off-Site wells are sampled quarterly and to date have shown no detectable levels of any dissolved VOCs except carbon disulfide, ethene, and toluene.

To fill possible data gaps and further refine the understanding of the Site hydrogeology and VOC contaminant migration mechanisms, four additional off-Site monitoring wells, MW-25I, MW-25D, MW-26I and MW-26D were installed in April 2006 (Figure 1). Analytical results for

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samples collected from these wells between June 2006 and October 2008 have indicated the presence of detectable concentrations of ethylene (MW-25D, MW-25I, and MW-26D), carbon disulfide (GW-26D), and toluene (GW-26D). VC has never been detected to date in samples collected from any of the off-Site monitoring wells.

## **2.0 FIELD AND ANALYTICAL METHODS**

Groundwater gauging and sampling activities were performed at the Site between October 17 and 29, 2008. With the exception of the naturally flowing artesian wells, the groundwater monitoring wells were purged and sampled using low-flow minimal draw-down techniques. The artesian wells were purged using the natural-flow pressures at the wellhead. The field practices and procedures used for the groundwater monitoring wells during the October 2008 groundwater monitoring event were consistent with those established during previous quarterly monitoring events. A brief description of the groundwater gauging, sampling, and analyses are provided below.

### **2.1 GROUNDWATER ELEVATIONS**

On October 17, 2008, AECOM collected static groundwater level measurements from one-hundred and twenty-eight groundwater monitoring wells, three active, and two inactive extraction wells located both on-Site and off-Site (Table 1 and Figures 2 and 3). The groundwater levels from the flowing artesian wells were measured using a sealed k-packer wellhead assembly with a pressure transducer capable of reading water levels to an accuracy of 0.01 feet. Prior to gauging the wells, the transducer was calibrated and any difference in vertical distance from the calibration point to the water surface was noted and recorded so that the readings could be corrected later if necessary. The device was set on top of each well casing and the pressure head was allowed to stabilized before it was recorded in units of feet of water above the top of the well casing (ATOC).

The groundwater levels from the non-flowing wells were measured to within 0.01 feet, using an electronic water level indicator. The distance from the top of the well casing to the groundwater potentiometric surface in the well was measured and recorded as the static water level (SWL). The groundwater level elevations were calculated by subtracting the SWL from the TOC elevation. Groundwater levels from active extraction wells PW-4 and PW-6 were not measured as these wells are under uncontrollable artesian conditions. In addition, a groundwater level could not be obtained from GW-17I due to damage to the well casing.

## 2.2 GROUNDWATER SAMPLING PROCEDURES

Groundwater sampling was conducted between October 20 and 29, 2008 at forty-nine monitoring well locations, four active, and two inactive extraction wells. Details summarizing the sampling procedures for the low-flow pumping method and natural artesian flow methods are provided in the following sections.

### 2.2.1 LOW-FLOW SAMPLING METHODS

A total of thirty-three groundwater monitoring wells were purged using low-flow methods, utilizing either a peristaltic pump (twenty-two wells) or a bladder pump (eleven wells), at flow rates ranging from 100 to 375 milliliters per minute. During the installation of the tubing for the peristaltic pump or the placement of the bladder pump, care was taken to minimize disturbance of the stagnant water column in the well. If a bladder pump was used to purge the well, the pump was installed in the well and left in place for at least one hour to equilibrate with the water column before purging commenced.

Field parameters, including pH, temperature, conductivity, dissolved oxygen, oxidation reduction potential (ORP), and turbidity, were collected and recorded throughout purging activities on a low-flow field purge form (Appendix A). With the exception of turbidity, field parameter readings were measured in-line using a sealed flow-through cell and multi-parameter analyzer. Turbidity readings were obtained using an extracted water sample and a separate optical turbidity meter. Groundwater purging continued until stabilization of the field parameters was observed. Stabilization was considered to have been achieved when three consecutive readings for each parameter were within the following limits:

- ◆ pH -  $\pm 0.1$  pH units of the average of the three readings;
- ◆ Temperature -  $\pm 3\%$  of the average of the three readings;
- ◆ Conductivity -  $\pm 0.005$  millisiemen per centimeter (mS/cm) of the average value of the three readings for conductivity  $< 1$  mS/cm and  $\pm 0.01$  mS/cm of the average value of the three readings for conductivity  $> 1$  mS/cm;

- ◆ ORP -  $\pm 10$  millivolts (mV) of the average value of the three readings;
- ◆ DO -  $\pm 10$  percent of the average value of the three readings; and
- ◆ Turbidity -  $\pm 10$  percent of the average value of the three readings, or a final value of less than 5 nephelometric turbidity units (NTU).

Once the groundwater quality parameters stabilized, the tubing was removed from the flow-through cell and the sample collected directly from the discharge line of the peristaltic or bladder pump. The discharge flow rate was decreased, as necessary, to maintain laminar flow while filling the sample bottles. All purge water was disposed through the on-Site groundwater remediation treatment system.

### **2.2.2 NATURAL ARTESIAN FLOW SAMPLING METHODS**

A total of sixteen monitoring wells were purged using natural artesian flow. The flowing artesian wells were sampled using a sealed k-packer wellhead assembly with a small diameter hose barb at the other end. A short section of hose attached this assembly to a flow diversion valve which controlled the amount of water flowing into the flow-through cell. The water flow into the cell was only reduced far enough not to damage the flow through cell. Field parameters were collected and recorded throughout purging activities, as described above for the low-flow sampling method on a low-flow field purge form (Appendix A). All purge water was disposed of through the on-Site groundwater remediation treatment system.

### **2.2.3 ACTIVE GROUNDWATER EXTRACTION WELL SAMPLING METHODS**

Four active groundwater extraction wells were sampled during the October 2008 annual sampling event. These well samples were collected through sample collection ports built into the piping between the groundwater treatment system and each well. Field parameters, including pH, temperature, conductivity, dissolved oxygen, ORP, salinity, and turbidity, were collected and recorded on a low-flow field purge form (Appendix A) prior to the collection of the analytical sample.

## 2.3 ANALYTICAL METHODS

Groundwater samples collected from the monitoring wells were analyzed for the following parameters by Trimatrix Laboratories, of Grand Rapids, Michigan:

- Volatile Organic Compounds (VOCs) by United States Environmental Protection Agency (USEPA) Method 8260B
- Biogeochemical Parameters:
  - Dissolved gases (methane, ethane, ethene) by RSK 175
  - Inorganics (ammonia, nitrate/nitrite, sulfate, chloride) by USEPA 300 Series Methods
  - Total organic carbon (TOC), and alkalinity (total) by USEPA Series 300 and 400 Methods

In addition to the laboratory analytical methods listed above, groundwater from each well was measured in the field for sulfide and dissolved metals (iron and manganese). These field measurements were obtained using colorimetric methods with a Hach DR 850 instrument, after the well was purged and the field parameters had stabilized.

Groundwater samples from the four active extraction wells and two inactive extraction wells were analyzed only for VOCs by EPA Method 8260B.

## 2.4 QUALITY ASSURANCE/QUALITY CONTROL SAMPLES

Quality assurance quality control (QA/QC) samples were collected to monitor the effectiveness of the decontamination procedures and to identify any field or laboratory conditions that may affect sample integrity. QA/QC samples included the following:

- **Duplicate Samples** - Duplicate samples were collected from four monitoring wells. The wells selected for duplicate sample collection were DNR-5, GW-16, GW-17D, GW-20I and RW-5S. For each sample obtained, a duplicate set of sample containers was filled immediately following collection of the original sample. Each duplicate sample was handled and analyzed in a fashion identical to the monitoring well samples.
- **Rinsate Samples** - Six rinsate (equipment blank) samples were collected following standard decontamination procedures. Equipment blank samples were collected at a

frequency of one sample for every day of sampling when non-dedicated equipment was being used. For each equipment blank sample, deionized water was poured through the decontaminated sampling equipment and collected in a set of sample containers. Each equipment blank sample was handled and analyzed in a fashion identical to the monitoring well samples.

- **Matrix Spike/Matrix Spike Duplicates (MS/MSD)** - MS/MSD samples were collected from extraction wells PW-1 and PW-9 and from monitoring well GW-5D. For each sample, one additional set of sample containers was filled immediately following the collection of the corresponding original sample and submitted for laboratory QA/QC purposes. Each MS/MSD sample was handled and analyzed in a manner identical to the monitoring well samples.
- **Field Blank Samples** – Six field blank samples were collected during the sampling event. Field blank samples were collected at a frequency of one for every three days of sampling. Field blank samples were collected by filling a set of VOC bottles with laboratory de-ionized water while conducting the sampling at a monitoring well. Field blank samples were collected during the sampling of wells DNR-3, GW-5I, GW-20D, GW-22I, GW-25D, and MW-102D.

All QA/QC and monitoring well samples were placed directly into appropriately preserved sample containers, as prepared and provided by the analytical laboratory. All sample bottles were labeled, packed in coolers, and transported to the analytical laboratory under proper chain-of-custody procedures.

### **3.0 GROUNDWATER MONITORING RESULTS**

VC, TCE, and cis-1,2-DCE are the primary VOCs at the Site based on the detected concentrations and frequency of detections in the groundwater monitoring wells. The October 2008 annual groundwater monitoring results are summarized and discussed in the following sections.

#### **3.1 GROUNDWATER ELEVATIONS**

Water levels were measured in one hundred and twenty-eight groundwater monitoring wells and three active and two inactive extraction wells on October 17, 2008. These water level data are summarized in Table 1.

One hundred of the one hundred and twenty-eight groundwater elevations measured were utilized to create the October 2008 groundwater contour figures. Seventy-three monitoring well groundwater levels were input into the kriging program KT3D, developed by S.S. Papadopoulos & Associates, Inc. to produce the shallow zone groundwater elevation map of the site (Figure 2) and forty-one monitoring well groundwater levels were input to produce the deep zone groundwater elevation map (Figure 3). The program includes kriging water levels with a drift term that accounts for the affect of pumping at wells.

The groundwater level elevations in the shallow zone ranged from 1005.87ft. AMSL at well MW-111I, located off-site to the southwest of the Site, to 980.30 feet AMSL at monitoring well GW-26I, located off-site to the northeast of the Site. The groundwater flow direction on-Site is generally from south to north at a horizontal gradient of approximately 0.003 feet/foot (ft/ft) across the southern and central portions of the property. The gradient steepens upgradient of extraction well PW-6 to 0.01 ft/ft and then flattens out and reverses direction to the southwest downgradient of PW-6 (0.003 ft/ft) to the northeast property boundary. The groundwater flow direction becomes more northeasterly near the northeast property boundary where the gradient increases to 0.014 ft/ft. (Figure 2).

The groundwater level elevations in the deep zone ranged from 1005.50 ft. AMSL at well MW-110D, located south of the southern boundary of the property, to 982.56 feet AMSL at monitoring well GW-26D, located off-site to the northeast of the Site. The flow direction in the

deep zone is similar to that observed in the shallow zone. The horizontal gradient across the southern and central portions of the property ranges from 0.01 to 0.003 ft/ft. Similar to the shallow zone, the gradient steepens upgradient of extraction well PW-6 to 0.022 ft/ft and then flattens out downgradient of PW-6 (0.007 ft/ft) to near the northeast property boundary. The groundwater flow direction becomes more northeasterly near the northeast property boundary where the gradient increases to 0.011 ft/ft. (Figure 3).

### 3.2 FIELD PARAMETERS

Groundwater field parameters monitored during well purging activities included temperature, pH, conductivity, dissolved oxygen, turbidity, and ORP. When these parameters stabilize, the purge water is then considered to be representative of groundwater conditions within the water-bearing unit. A general discussion and summary of the stabilization parameters recorded during purging is provided below.

- **Temperature:** Groundwater temperatures ranged from 6.78 (GW-5D) to 12.21 (MW-103S) °C.
- **pH:** Groundwater pH ranged from 6.85 (MW-2I) to 8.99 (GW-18).
- **Conductivity:** Groundwater conductivities ranged from 84 (MW-102D) to 912 (GW-20I) microSiemens per centimeter ( $\mu\text{S}/\text{cm}$ ).
- **Dissolved Oxygen:** Dissolved oxygen values ranged from 0.18 (GW-6D) to 8.90 (RW-1) mg/L.
- **Turbidity:** Groundwater turbidity ranged from less than 1 (multiple wells) to 180 (MW-108D) nephelometric turbidity units (NTUs).
- **ORP:** Groundwater ORP ranged from -249.3 (GW-28D) to 650.2(GW-12I) milliVolts (mV).

The field parameters recorded during the October 2008 annual sampling event were generally consistent with historical observations. The low dissolved oxygen and ORP values observed in most monitoring wells is indicative of ambient anaerobic conditions. Appendix A includes the Low-Flow Field Purge Forms that were completed in the field during the sampling event.

### 3.3 ANALYTICAL RESULTS

The VOC concentrations detected in October 2008 annual sampling event are summarized in Table 2 and Figure 4. A table showing historical VOC concentrations is provided as Table 3. Complete laboratory analytical reports are provided as Appendix B.

The VOC analytical results are compared to the TCLs developed in the ROD (EPA, September 30, 1987). These TCLs are further subdivided into Phase I and Phase II TCLs as identified in the *Remedial Design and Remedial Action Work Plan* (Fred C. Hart Associates, Inc., et al, September 18, 1989). The detected VOC concentrations were also compared to the current MDEQ Remediation and Redevelopment Division (MDEQ-RRD) Part 201 Generic Cleanup (Part 201) Residential Drinking Water, Groundwater Surface Water Interface (GSI), Groundwater Contact Criteria and the 2004 Federal Drinking Water Maximum Contaminant Levels (MCLs).

In general, VOCs were detected in fifteen of the monitoring wells, three active, and one inactive extraction wells (DNR-7, GW-5D, GW-5I, GW-17D, GW-18, GW-20D, GW-28D, GW-28I, GW-29, MW-2I, MW-3I, MW-103S, PW-1, PW-3, PW-6, PW-8, RW-1, RW-1D, and RW-5S) sampled in October 2008. VOCs that were detected, but did not exceed the Part 201 Criteria, MCLs, or the ROD TCLs, include chlorobenzene, chloroethane, 1,1-dichloroethane, 1,1-dichloroethene, ethylbenzene, toluene, trans-1,2-dichloroethene, and total xylenes. The detected VOCs that exceeded one or more ROD TCL, Part 201, and/or MCL criterion are summarized below.

#### 3.3.1 VINYL CHLORIDE

Vinyl chloride (VC) is the most prevalent VOC at the Site, detected in thirteen of the monitoring wells, two active extraction wells, and one inactive extraction well sampled during this monitoring event. The detected VC concentrations in groundwater samples ranged from 1.3  $\mu\text{g/L}$  (PW-8) to 250  $\mu\text{g/L}$  (GW-29). The dissolved VC plume as shown in Figure 5 begins near well MW-106D (located northwest of the groundwater treatment system building) and extends north to northeast to the property boundary near wells GW-19S and GW-20D (Figure 5). The VC concentrations detected in groundwater across the Site between March 2008 and October 2008 are summarized on the following table.

Sample Location	3/2008	6/2008	9/2008	10/2008
DNR-6	NS	0.40	NS	NS
DNR-7	77	100	87	79
GW-17D	13	11	12	8.7
GW-17I	< 1.0	< 1.0	< 1.0	< 1.0
GW-18	18	18	15	9.7
GW-19S	<1.0	0.63	<1.0	<1.0
GW-20D	16	18	14	11
GW-5I	56	63	54	41
GW-5D	NS	5.7	NS	23
MW-2I	NS	11	NS	6.4
MW-3I	18	25	22	16
PW-1	8.3	13	11	8.3
PW-3	NS	<1.0	NS	<1.0
PW-4	1.5	<1.0	1.4	<1.0
PW-6	7.6	9.1	10	6.6
PW-7	NS	NS	NS	NS
PW-8	NS	NS	NS	1.3
RW-1D	1.7	1.1	1.5	1.4
RW-5S	<1.0	<1.0	<1.0	<1.0

**Notes:**

MCL = Maximum Contaminant Level

Shaded areas indicate that the concentration exceeds the MCL Part 201 or ROD Criteria.

NS = Not Sampled

**Comparison Criteria (µg/L):**

ROD TCLs for Vinyl Chloride:

Phase I = 1.0

Phase II = 0.003

2004 Federal Drinking Water MCL for Vinyl Chloride = 2.0

Part 201 Criteria for Vinyl Chloride:

Residential Drinking Water = 2.0

Groundwater/Surface Water Interface = 15

Groundwater Contact = 1,000

Although the trends in VC concentrations over time vary between different individual monitoring wells, the general distribution of VC across the Site has remained relatively consistent (i.e. VC has not been detected in any additional monitoring wells over the past three years other than the newly installed wells located in the reductive dechlorination pilot study area). Graphs showing detailed VC, TCE, and cis-1,2-DCE concentration trends over time (for wells with detectable concentrations of these VOCs) are provided as Figures 6 through 26. Overall decreasing VC concentration trends are apparent in monitoring wells DNR-6, GW-5I, GW-5D, GW-17I, GW-17D, GW-18, GW-19S, GW-20D, MW-3I, PW-1, PW-3, PW-4, PW-6 and RW-5S. With the exception of RW-5S, these wells are all located in the vicinity of pumping wells PW-1,

PW-4, and PW-6. RW-5S is located in the vicinity of pumping well PW-3. The VC concentrations at wells DNR-7 and RW-1D are generally stable.

Table 3 presents historical VC data. To date, VC has not been observed in the off-Site well clusters GW-22I/S/D, GW-23I/S/D, GW-24I/D GW-25I/D and GW-26I/D, located further down gradient. With the exception of low concentrations of carbon disulfide and toluene, chlorinated VOCs have not been detected at these off-Site wells.

### 3.3.2 TRICHLOROETHENE

Trichloroethene (TCE) was detected in groundwater samples collected from three of the monitoring wells sampled in June 2008. The detected concentrations were 11 µg/L (GW-28D), 1.2 µg/L (RW-1), and 120 µg/L (RW-1D). TCE and VC iso-concentration contours are shown in Figure 5.

The TCE concentrations reported in October 2008 were generally consistent with those observed in recent sampling events. The TCE concentration at well RW-1D remains elevated from concentrations detected prior to April 2006. To date, the furthest down gradient location at which TCE has been routinely detected is at pumping well PW-8. TCE has not been observed at any of the newest down gradient wells and boundary wells, including the GW-17, GW-18, GW-19, GW-20 and GW-21 series, or any of the off-Site monitoring wells.

Graphs showing detailed VC, TCE, and cis-1,2-DCE concentration trends over time (for wells with detectable concentrations of these VOCs) are provided as figures 6 through 26.

### 3.3.3 Cis-1,2-DICHLOROETHENE

Concentrations of cis-1,2-dichloroethene (cis-1,2-DCE) were detected in groundwater samples collected from ten of the monitoring wells and two of the active extraction wells sampled in October 2008. The cis-1,2-DCE concentrations ranged from 1.2 µg/L at wells MW-3I and GW-5I to 140 µg/L at well DNR-7. The wells where cis-1,2-DCE was detected, and the reported concentrations, are provided in the table below. Cis-1,2-DCE is typically observed in the north central portion of the site.

Sample Location	cis-1,2-DCE ( $\mu\text{g/L}$ ) October 2008
DNR-7	140
GW-5D	32
GW-5I	1.5
GW-28D	110
GW-28I	15
GW-29	2.9
MW-3I	1.2
MW-103S	1.7
PW-1	27
PW-6	11
RW-1	3.6
RW-1D	28

Notes:

MCL = Maximum Contaminant Level

Shaded areas indicate that the concentration exceeds the MCL Part 201 or ROD Criteria.

Comparison Criteria ( $\mu\text{g/L}$ ):

2004 Federal Drinking Water MCL for cis-1,2-DCE = 70

Part 201 Criteria for cis-1,2-DCE:

Residential Drinking Water = 70

Graphs showing detailed VC, TCE, and cis-1,2-DCE concentration trends over time (for wells with detectable concentrations of these VOCs) are provided as Figures 6 through 26. Over the last several sampling events the cis-1,2-DCE concentrations, where detected, have remained generally stable with a few exceptions. A decreasing concentration trend is evident in the recent data from MW-103S. Previously a strong decreasing trend had been apparent at well DNR-7, located near the center of the site, however, the concentration has rebounded to levels similar to concentration measured in March 2007. A slight increasing trend is evident in wells PW-1, and PW-6 since June 2004.

### 3.3.4 BENZENE

Concentrations of benzene were detected in groundwater samples collected from three of the monitoring wells (GW-28I, GW-29, and MW-2I) and one of the active extraction wells (PW-3) sampled in October 2008. Benzene is sporadically observed in the central portion of the site. An iso-concentration map for benzene was not prepared.

### **3.3.5 BIOGEOCHEMICAL DATA**

All fifty-five groundwater samples collected in October 2008 were analyzed for biodegradation indicators including methane, ethane, ethene, nitrate/nitrite, ammonia, chloride, sulfate, total alkalinity, and total organic carbon. The biogeochemical parameters dissolved iron, dissolved manganese, and sulfide were also collected from fifty-three wells. Additional biogeochemical parameters were collected in the field from all fifty-five wells, including dissolved oxygen and ORP. These parameters are used to determine the aerobic/anaerobic condition of the aquifer. In general, electron acceptors progress from oxygen to nitrate, manganese, iron, sulfate and methane, with oxygen indicating the aerobic end of the scale and methane indicating the anaerobic end of the scale.

A summary of the October 2008 biogeochemical results is provided in Table 4. A summary of the biogeochemical results obtained during this sampling event is provided as follows:

#### **Field Measurements**

**Dissolved Oxygen:** Dissolved oxygen values ranged from 0.18 (GW-6D) to 8.90 (RW-1) mg/L (see Section 3.2).

**ORP:** Groundwater ORP ranged from -249.3 (GW-28D) to 650.2 (GW-12I) millivolts (mV) (see Section 3.2).

#### **Laboratory Results**

**Methane:** Methane was detected in fifty-four of the wells sampled, at concentrations ranging from 1.2 (RW-5S) to 2,600 µg/L (GW-28I).

**Ethane:** Ethane was not detected in any of the wells sampled.

**Ethene:** Ethene was detected in twenty-seven of the wells sampled at concentrations of 1.1 µg/L (multiple wells) and 100 µg/L (GW-29).

**Nitrate/Nitrite:** Nitrate was detected in five of the wells sampled at concentrations ranging from 0.063 mg/L (GW-16) to 0.32 mg/L (PW-9). Nitrite was not detected in any well sampled.

**Sulfate:** Sulfate was detected in forty-three of the wells sampled, at concentrations ranging from 5.7 (GW-12I) to 31 mg/L (GW-1I).

**Ammonia:** Ammonia was detected in forty-four of the wells sampled at concentrations ranging from 0.061 mg/L (PW-4) to 0.55 mg/L (MW-109D).

**Chloride:** Chloride concentrations ranged from 1.7 mg/L (DNR-1) to 11 mg/L (MW-109D and PW-8).

**Total Alkalinity:** Total alkalinity concentrations ranged from 190 mg/L (GW-28D) to 390 mg/L (GW-17D Duplicate).

**Total Organic Carbon:** Total organic carbon content ranged from below the reporting limit of 1.1 mg/L (Multiple wells) to 63 mg/L (GW-28I).

Based on a review of these data, the aquifer appears to be under predominantly anaerobic conditions, although neither strongly anaerobic nor aerobic conditions are apparent. Elevated concentrations of methane in DNR-7, GW-12I, GW-26D, GW-28I, GW-29, RW-1, RW-1D, RW-2 and MW-102D suggest that methanogenesis (anaerobic degradation) may be occurring at these locations. The overall low values for DO and ORP are also indicative of anaerobic conditions.

### 3.4 QA/QC RESULTS

Analytical results for the QA/QC samples collected during the October 2008 sampling event are summarized below. Complete laboratory analytical reports including QA/QC sample results are provided in Appendix B.

#### Field Blanks

Six field blank samples were submitted to the laboratory for analysis of VOCs. Chloroform (16 µg/L) and bromodichloromethane (2.3 µg/L) were detected in field blank FB-1. All other samples contained no detectable concentration of VOCs. None of the field blank samples had elevated reporting limits (RLs).

### **Equipment Blanks**

Six equipment blank samples were submitted to the laboratory for analysis of VOCs. All six samples contained no detectable concentration of VOCs. None of the equipment blank samples had elevated reporting limits (RLs).

### **Duplicate Samples**

Duplicate samples (DNR-5, GW-16, GW-17D, GW-20I and RW-5S) were reviewed for field precision within 50% relative percent difference (RPD). All duplicate samples were well within the 50% RPD.

### **Laboratory Method Blanks**

No samples were qualified based on any laboratory method blank.

### **Laboratory Control Samples**

The laboratory duplicate RPD for methane in PW-1 (batch 0810444-07) exceeded the control limit. Since the initial and/or the duplicate sample result was greater than or equal to 5 times the reporting limit, the initial reported result is considered estimated.

The methane concentration in samples from RW-1D, DNR-1, MW-109D, GW-12I, GW-26D, MW-102D, GW-29, and GW-28I (batches 0810444-03 and 8, 0810481-02 and 4, 0810598-07, 0810613-01 and 10, and 0810635-01) exceeded the calibrated range of the instrument. The sample results are considered estimated.

The laboratory control sample (LCS) was less than the lower control limit but greater than or equal to 10% for bromoform in quality control batch 0810481-01 through 16 and carbon disulfide for quality control batch 0810613-01 through 13. A positive result for these analytes in their associated QC batches are considered estimated; a non-detect result for the same analytes are considered as approximate.

The LCS/laboratory control sample duplicate (LCSD) RPD exceeded the control limit for bromomethane in QC batch 0810537-01 through 10. A positive result for this analyte in any sample from the associated QC batch is considered estimated. Non-detectable results are not qualified.

**MS/MSDs**

The matrix spike (MS) and /or matrix spike duplicate (MSD) recoveries were outside the control limit for 2-butanone (MEK), 2-hexanone, 4-methyl-2-pentanone (MIBK), acetone, and carbon disulfide from PW-1. The non-spiked sample result is considered estimated.

The RPD between the MS and MSD results exceeded the upper control limit for bromomethane and vinyl chloride from PW-9 and MIBK from GW-5D. The non-spiked sample result is considered estimated.

The MS or MSD recovery, but not both, was outside the control limit for acetone and carbon disulfide from PW-9. The RPD is within the control limit. The unspiked sample result is not qualified.

The MS and /or MSD recovery was outside the control limit for nitrogen, ammonia from GW-28I. The non-spiked sample result is considered estimated.

**Holding Times**

All groundwater samples were analyzed within the recommended holding times for each analysis.

#### **4.0 SUMMARY OF OCTOBER 2008 GROUNDWATER MONITORING EVENT**

Water levels were collected from a total of one hundred and twenty-eight groundwater monitoring wells and two active and four inactive extraction wells on October 17, 2008. Purging and sampling activities were performed on forty-nine on and off-site monitoring wells, four active and two inactive extraction wells between October 20 and 29, 2008 following appropriate technical and quality control procedures. All groundwater samples were submitted to Trimatrix Laboratories for analysis. All samples were analyzed within recommended holding times following strict quality control procedures.

In October 2008, groundwater elevations increased an average of 0.78 feet from the last monitoring event in September 2008. The shallow groundwater flow direction on-Site is generally from south to north at a horizontal gradient of approximately 0.003 ft/ft across the southern and central portions of the property. The gradient steepens upgradient of extraction well PW-6 to 0.01 ft/ft and then flattens out downgradient of PW-6 (0.003 ft/ft) to the northeast property boundary. The groundwater flow direction becomes more northeasterly near the northeast property boundary where the gradient increases to 0.014 ft/ft. (Figure 2).

The flow direction in the deep zone is similar to that observed in the shallow zone. The horizontal gradient across the southern and central portions of the property ranges from 0.01 to 0.003 ft/ft. Similar to the shallow zone, the gradient steepens upgradient of extraction well PW-6 to 0.022 ft/ft and then flattens out downgradient of PW-6 (0.007 ft/ft) to near the northeast property boundary. The groundwater flow direction becomes more northeasterly near the northeast property boundary where the gradient increases to 0.011 ft/ft. (Figure 3).

The distribution of dissolved VOCs in the aquifer is generally consistent with historical patterns. Over the last four quarters, concentrations of TCE, cis-1,2-DCE, and VC are either stable or decreasing across the Site, with the exception of an increase in cis-1,2-dichloroethene in PW-1 and PW-6. To date, however, only toluene and carbon disulfide have been detected in any off-Site monitoring wells on the east side of the wetland, despite the low level occurrence of VC in off-Site private supply wells.

## 5.0 GROUNDWATER EXTRACTION AND TREATMENT SYSTEM PERFORMANCE

The groundwater extraction and treatment system consists of four extraction wells and an air stripping system that is designed to remove VOCs from groundwater. The current active extraction wells PW-1, PW-3, PW-4, and PW-6 (Figure 27). Weekly monitoring of the treated and untreated groundwater is conducted in accordance with the Michigan Department of Environmental Quality (MDEQ) Substantive Requirements Document for Surface Water Discharge (Permit No. MIU990014).

### 5.1 COMPLIANCE

Table 5 provides a summary of the influent and effluent analyses, and weekly average air emission rates for the one-month period from October 1, 2008 through October 31, 2008.

Influent and effluent samples were collected weekly when the system was operational and semi-annually during the reporting period, in accordance with the MDEQ Substantive Requirements Document (SRD) No. MIU990014. Weekly samples were analyzed in the effluent and influent for vinyl chloride and 1,2-dichloroethene (1,2-DCE). Weekly effluent samples were also analyzed for arsenic, bis-2-ethyl-hexyl-phthalate, and lead. In addition, one effluent sample per month was analyzed for pentachlorophenol. Semi-annual samples were collected on October 13, 2008, and analyzed for the following parameters in addition to those identified above: influent and effluent polychlorinated biphenyls (PCBs), benzene, and toluene; and effluent chlorobenzene, methylene chloride, 1,1,1-trichloroethane (1,1,1-TCA), trichloroethylene (TCE), isophorone, and naphthalene. Based on the latest effluent analytical results the treatment system is in compliance with Section A.1 of the SRD. AECOM will continue to monitor the effluent analytical data for compliance.

Average hourly air emission rates from the groundwater treatment system for each weekly sampling period from the air stripper were calculated for the current reporting period (October 1, 2008 through October 31, 2008). The air emission rates for the air stripper system ranged from 0.0019 to 0.0075 pounds per hour (lbs/hr) during this reporting period (Table 5). The permitted allowable emissions for both the SVE and air stripper systems are 1.0 lbs/hr VOC. SVE was not operational during this reporting period.

## 5.2 SYSTEM MODIFICATIONS

The groundwater treatment system was shut down starting on September 22, 2008 for cleaning of the air stripper tower. During cleaning of the air stripper tower it was discovered that the riser pipe that conveys groundwater to the top of the air stripper tower was leaking and would need to be repaired. Cleaning of the air stripper tower was halted until the riser pipe could be repaired. The riser pipe was repaired on October 2, 2008 and cleaning resumed on October 3, 2008. Air stripper tower cleaning was completed October 13, 2008. The system was restarted and resumed pumping at normal rates.

## 5.3 SYSTEM OPERATIONS

The system has removed through October 31, 2008 an estimated 556.02 lbs of VOCs from the groundwater since start-up of the groundwater collection and treatment system on February 10, 1996. For this reporting period, the groundwater treatment system removed 1.13 lbs of VOCs (0.2% of cumulative total removal). This corresponds to an average VOC removal rate of 0.0046 lbs/hr for this quarter.

Table 6 provides the total volume of groundwater extracted from the active extraction wells, and percentage of pump operation per month for the period of October 1, 2008 through October 31, 2008. During October 2008, an estimated total of 7,919,000 gallons of groundwater, were extracted from the purge wells. The following problems were encountered during this reporting period, which caused down time for the extraction wells:

- The system was down from September 22, 2008 through October 13, 2008 for cleaning and pipe repair.

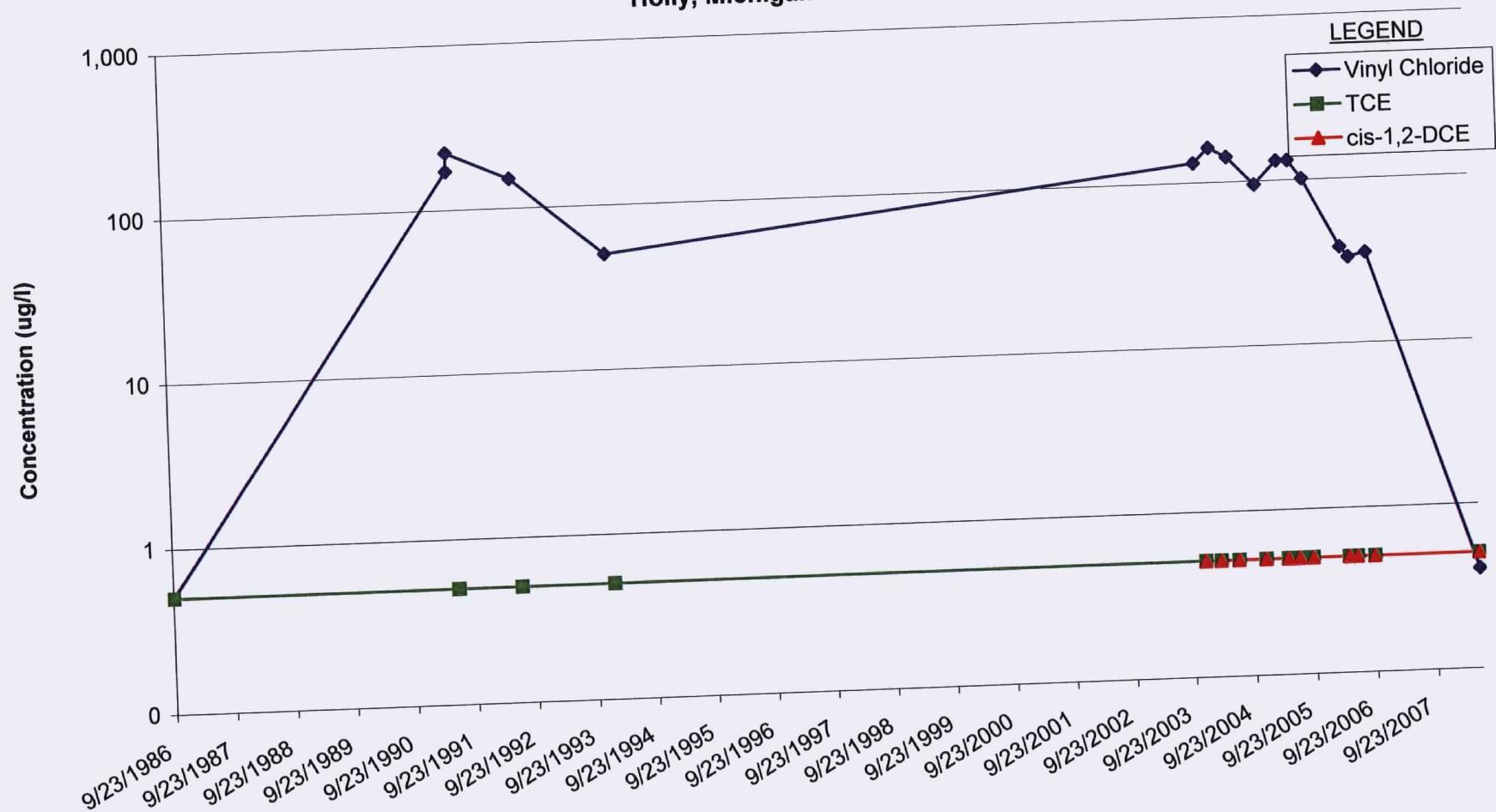
The groundwater pump and treat system operated 87% of the time over the reporting period for all wells. AECOM endeavors to keep system downtime to a minimum. The influent to and effluent from the groundwater extraction and treatment system are sampled on a weekly basis and tested for VC and DCE. AECOM will continue to track changes in contaminant concentrations in the wells and attempt to correlate this data with system operation.

## **6.0 PLANNED PROJECT ACTIVITIES**

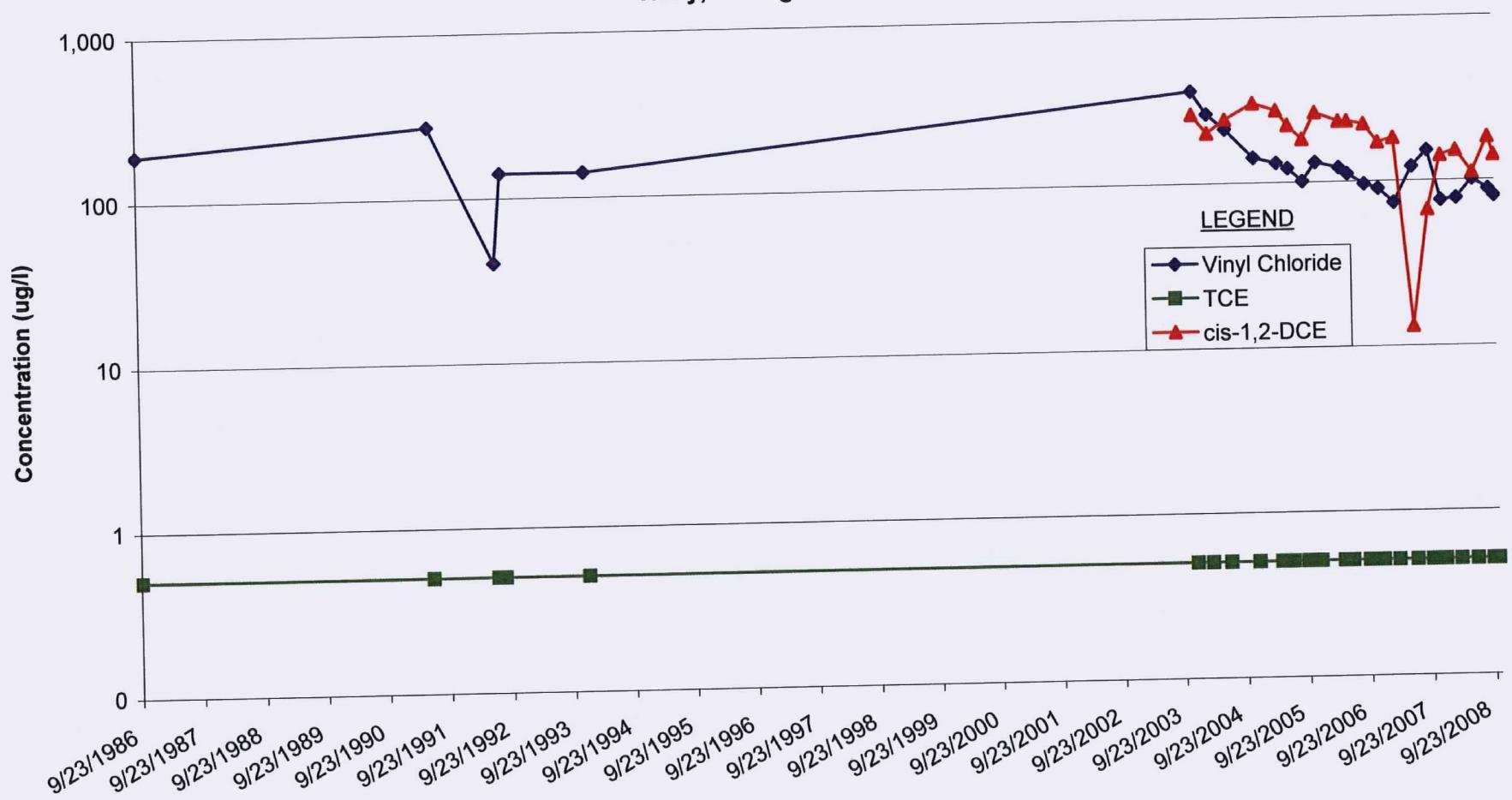
The next two semi annual groundwater sampling events are planned to take place in April and October 2009. The in-situ pilot study test started during January 2008 and is currently on-going. The next cleaning for the air stripper tower is scheduled for February 2009.

## **Figures**

**FIGURE 6**  
**DNR-6**  
**VC, TCE, and cis-1,2-DCE Concentrations Over Time**  
**October 2008 Quarterly Monitoring Event**  
**Rose Township Site**  
**Holly, Michigan**



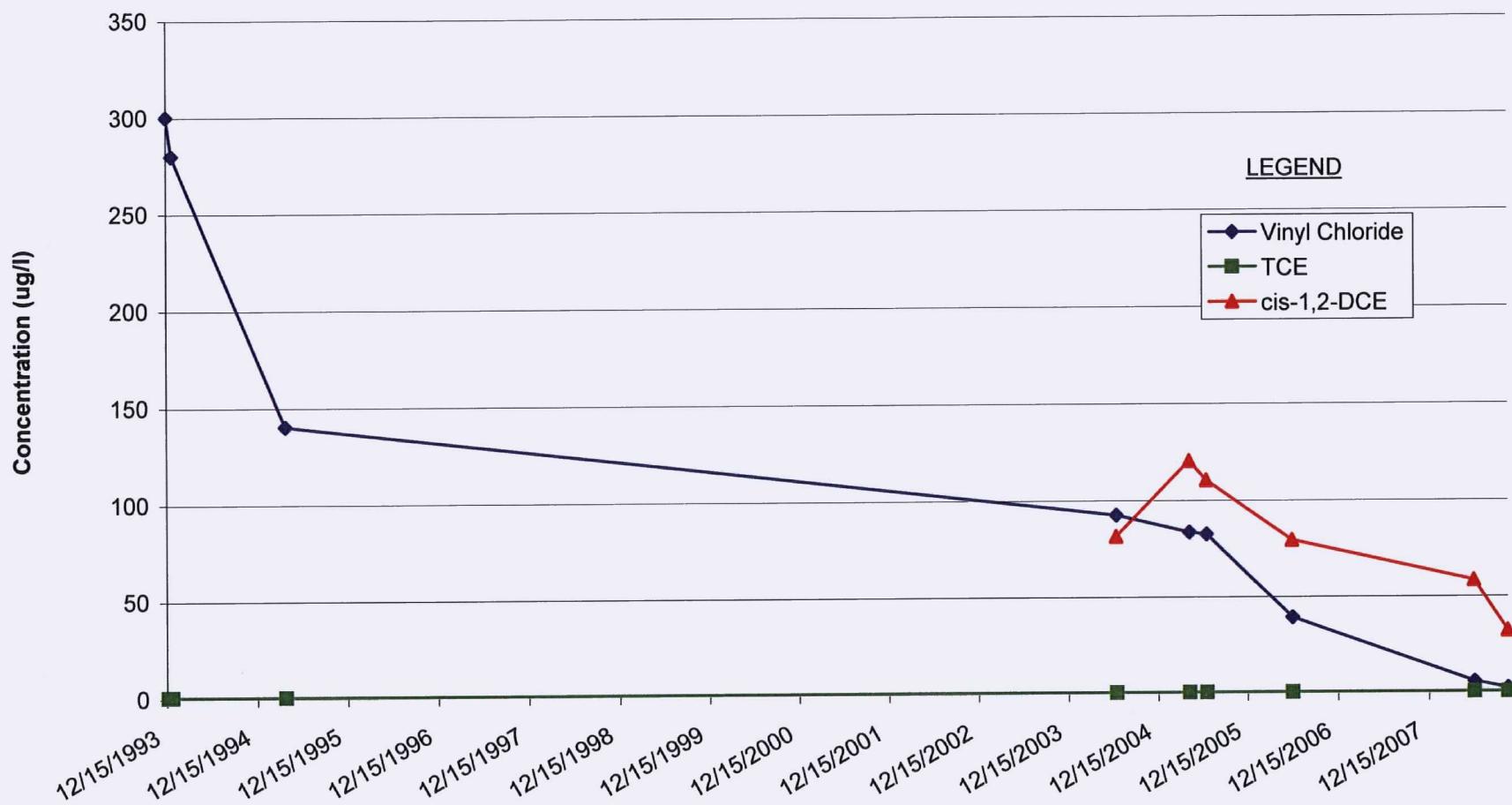
**FIGURE 7**  
**DNR-7**  
**VC, TCE, and cis-1,2-DCE Concentrations Over Time**  
**October 2008 Quarterly Monitoring Event**  
**Rose Township Site**  
**Holly, Michigan**



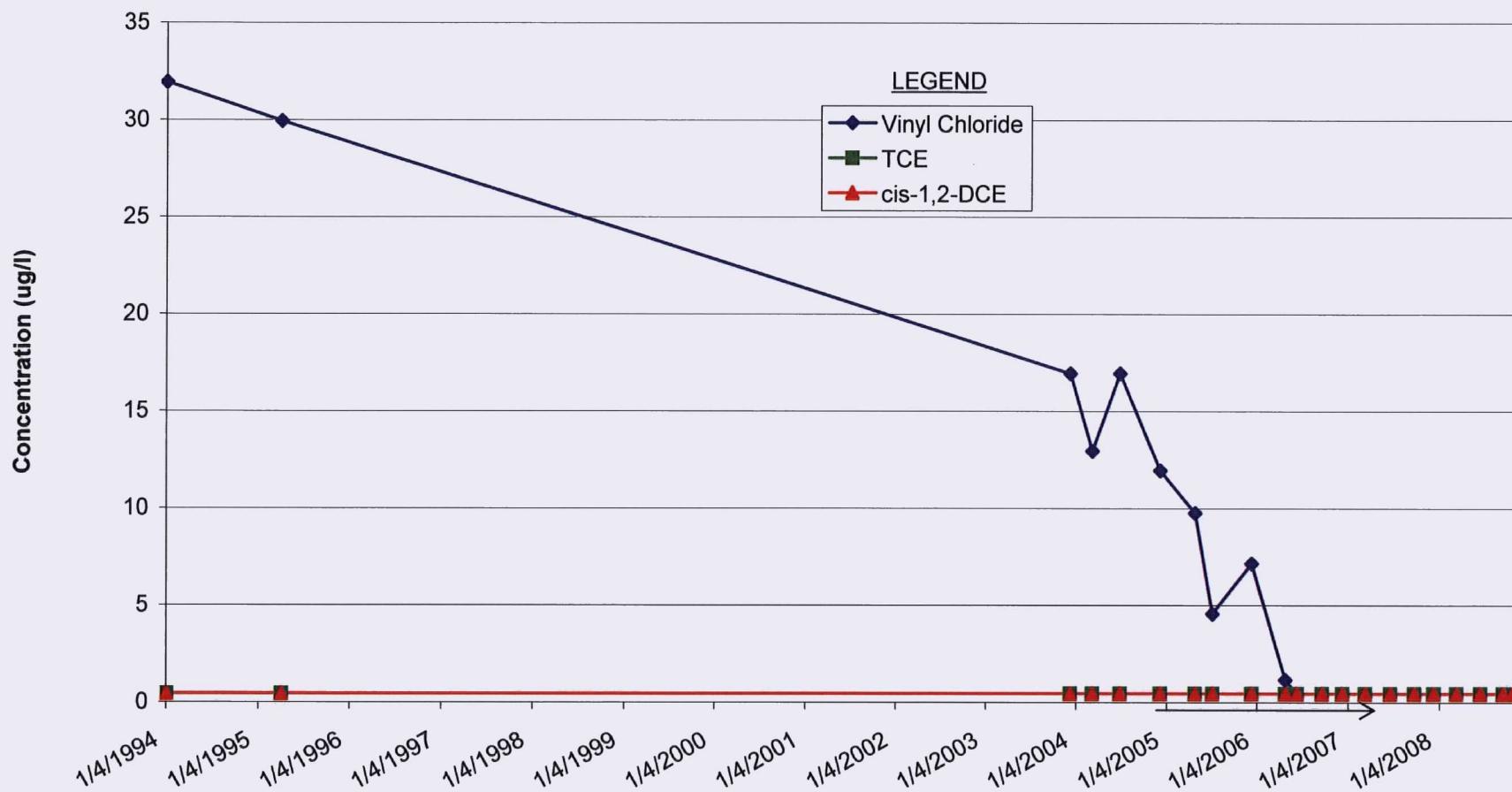
**FIGURE 8**  
**GW-5I**  
**VC, TCE, and cis-1,2-DCE Concentrations Over Time**  
**October 2008 Quarterly Monitoring Event**  
**Rose Township Site**  
**Holly, Michigan**



**FIGURE 9**  
**GW-5D**  
**VC, TCE, and cis-1,2-DCE Concentrations Over Time**  
**October 2008 Quarterly Monitoring Event**  
**Rose Township Site**  
**Holly, Michigan**



**FIGURE 10**  
**GW-6D**  
**VC, TCE, and cis-1,2-DCE Concentrations Over Time**  
**October 2008 Quarterly Monitoring Event**  
**Rose Township Site**  
**Holly, Michigan**



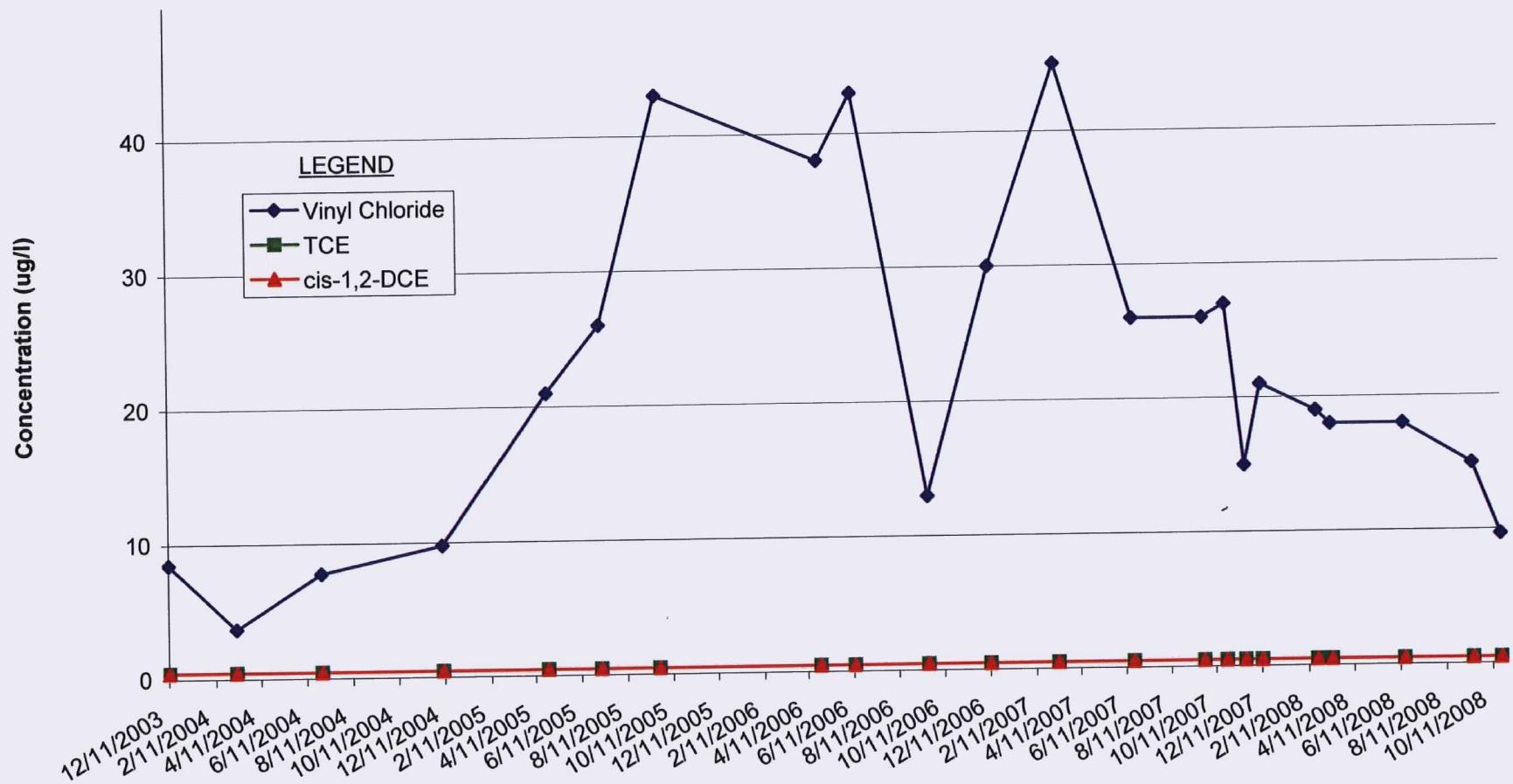
**FIGURE 11**  
**GW-17I**  
**VC, TCE, and cis-1,2-DCE Concentrations Over Time**  
**October 2008 Quarterly Monitoring Event**  
**Rose Township Site**  
**Holly, Michigan**



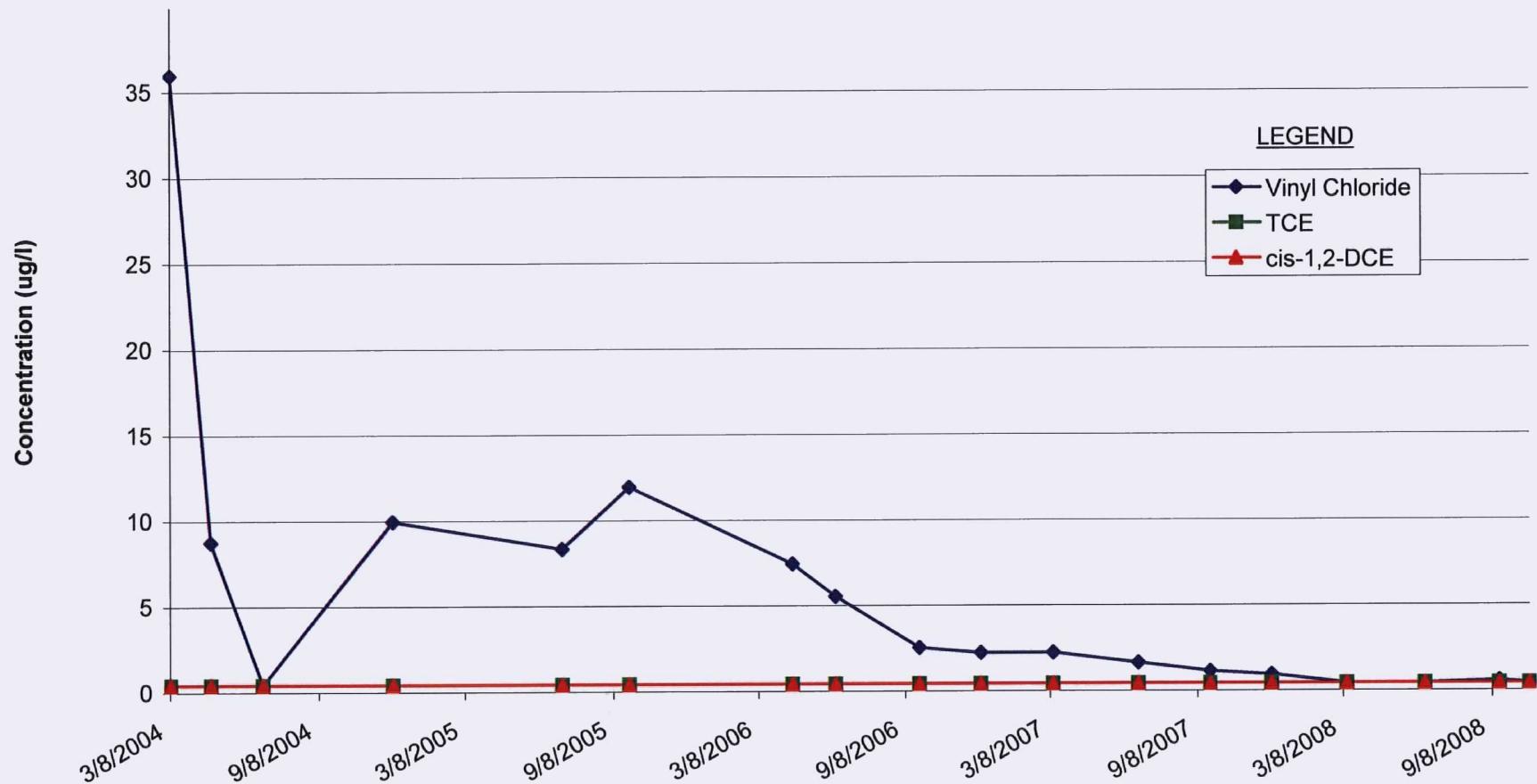
**FIGURE 12**  
**GW-17D**  
**VC, TCE, and cis-1,2-DCE Concentrations Over Time**  
**October 2008 Quarterly Monitoring Event**  
**Rose Township Site**  
**Holly, Michigan**



**FIGURE 13**  
**GW-18**  
**VC, TCE, and cis-1,2-DCE Concentrations Over Time**  
**October 2008 Quarterly Monitoring Event**  
**Rose Township Site**  
**Holly, Michigan**



**FIGURE 14**  
**GW-19S**  
**VC, TCE, and cis-1,2-DCE Concentrations Over Time**  
**October 2008 Annual Monitoring Event**  
**Rose Township Site**  
**Holly, Michigan**



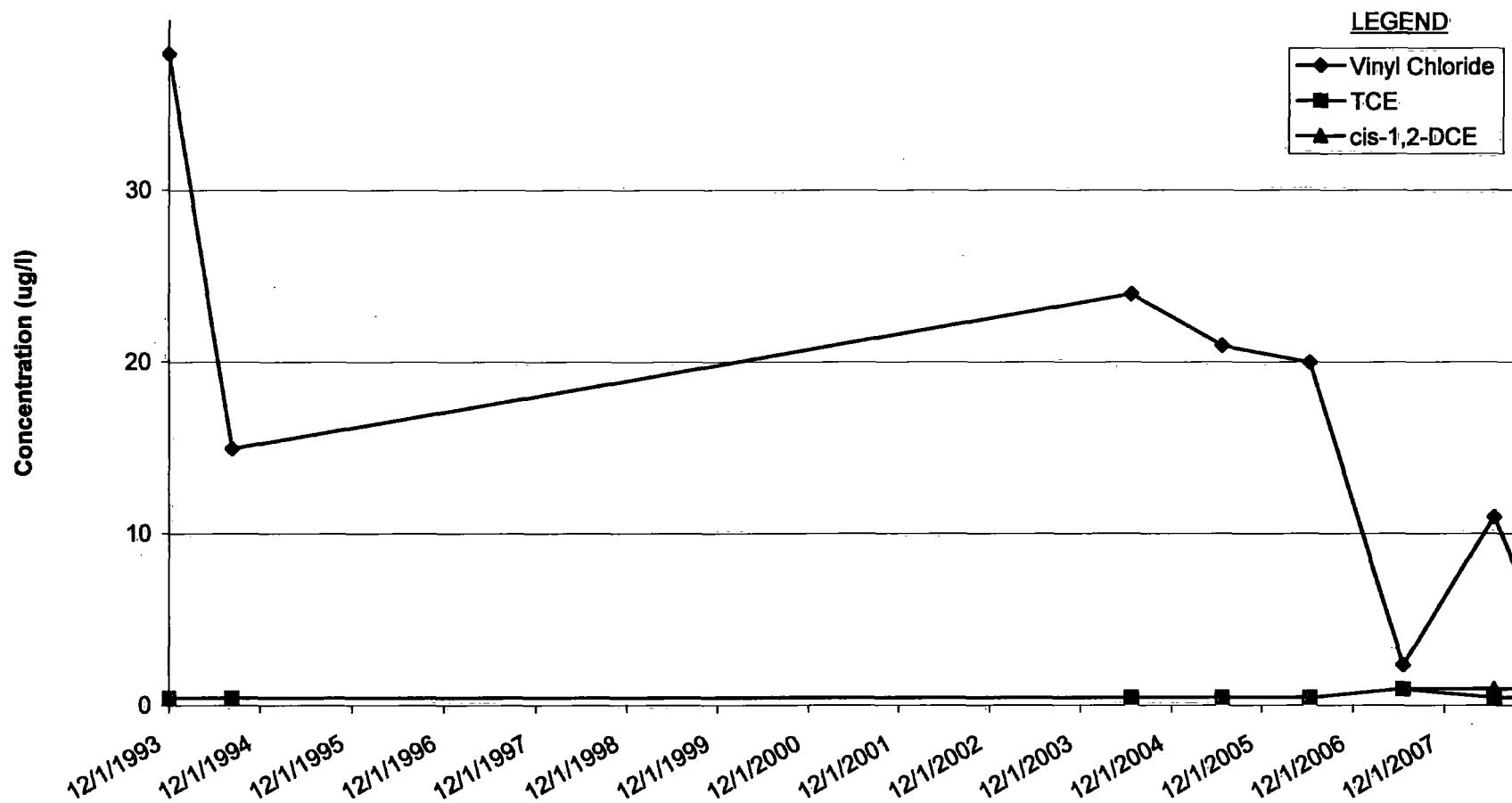
**FIGURE 15**  
**GW-20D**  
**VC, TCE, and cis-1,2-DCE Concentrations Over Time**  
**October 2008 Quarterly Monitoring Event**  
**Rose Township Site**  
**Holly, Michigan**

**LEGEND**

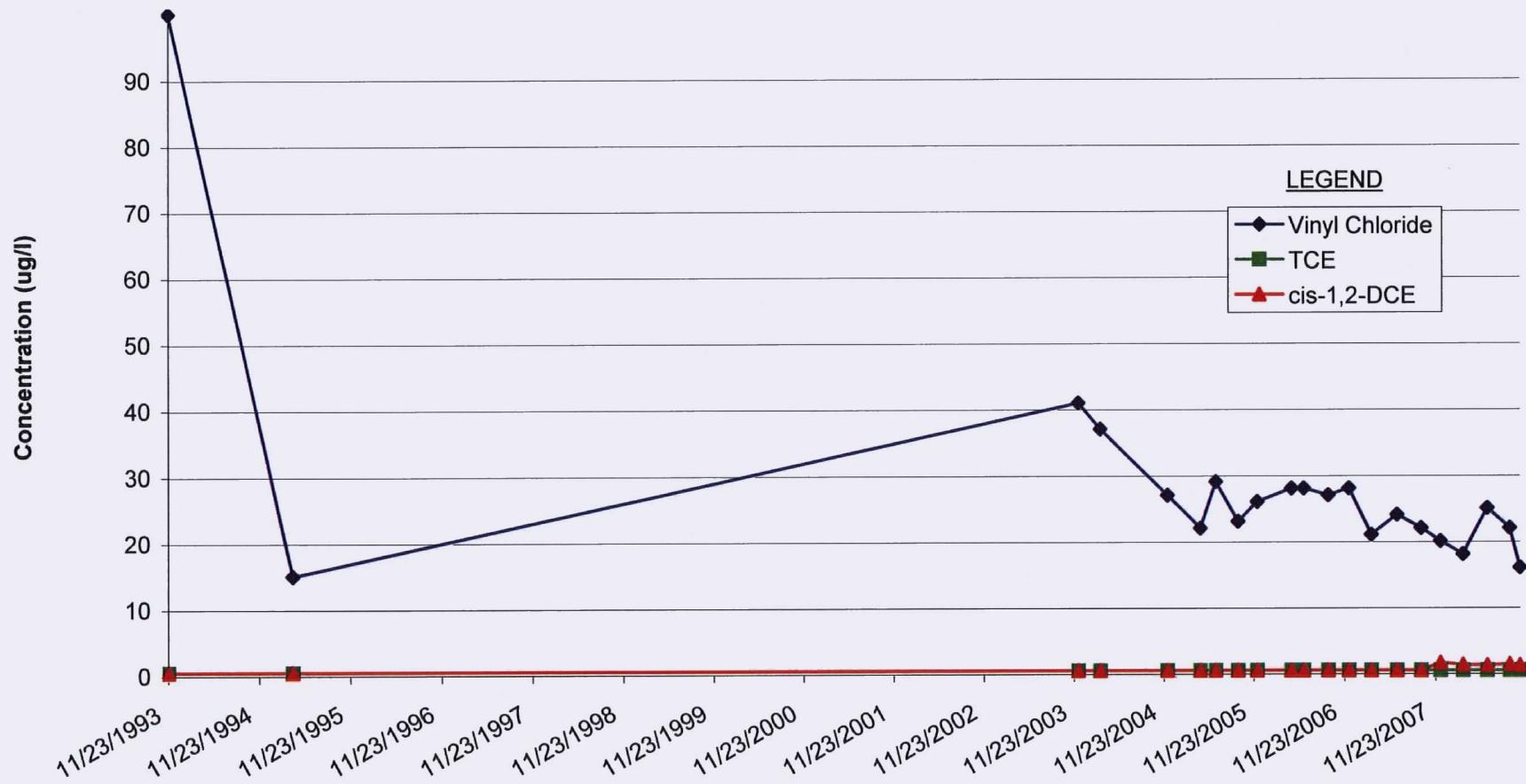
—●—	Vinyl Chloride
—■—	TCE
—▲—	cis-1,2-DCE



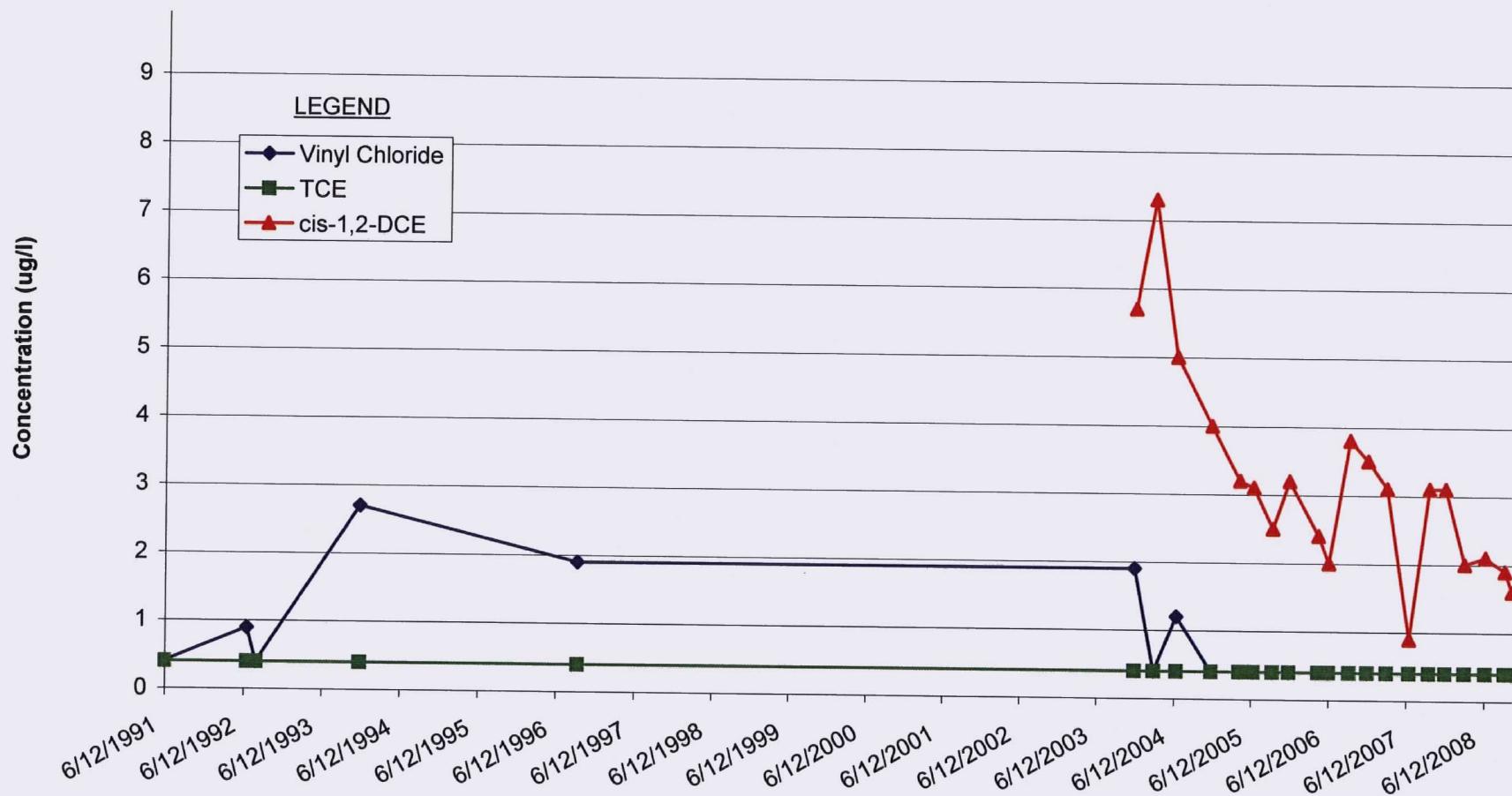
**FIGURE 16**  
**MW-2I**  
**VC, TCE, and cis-1,2-DCE Concentrations Over Time**  
**October 2008 Quarterly Monitoring Event**  
**Rose Township Site**  
**Holly, Michigan**



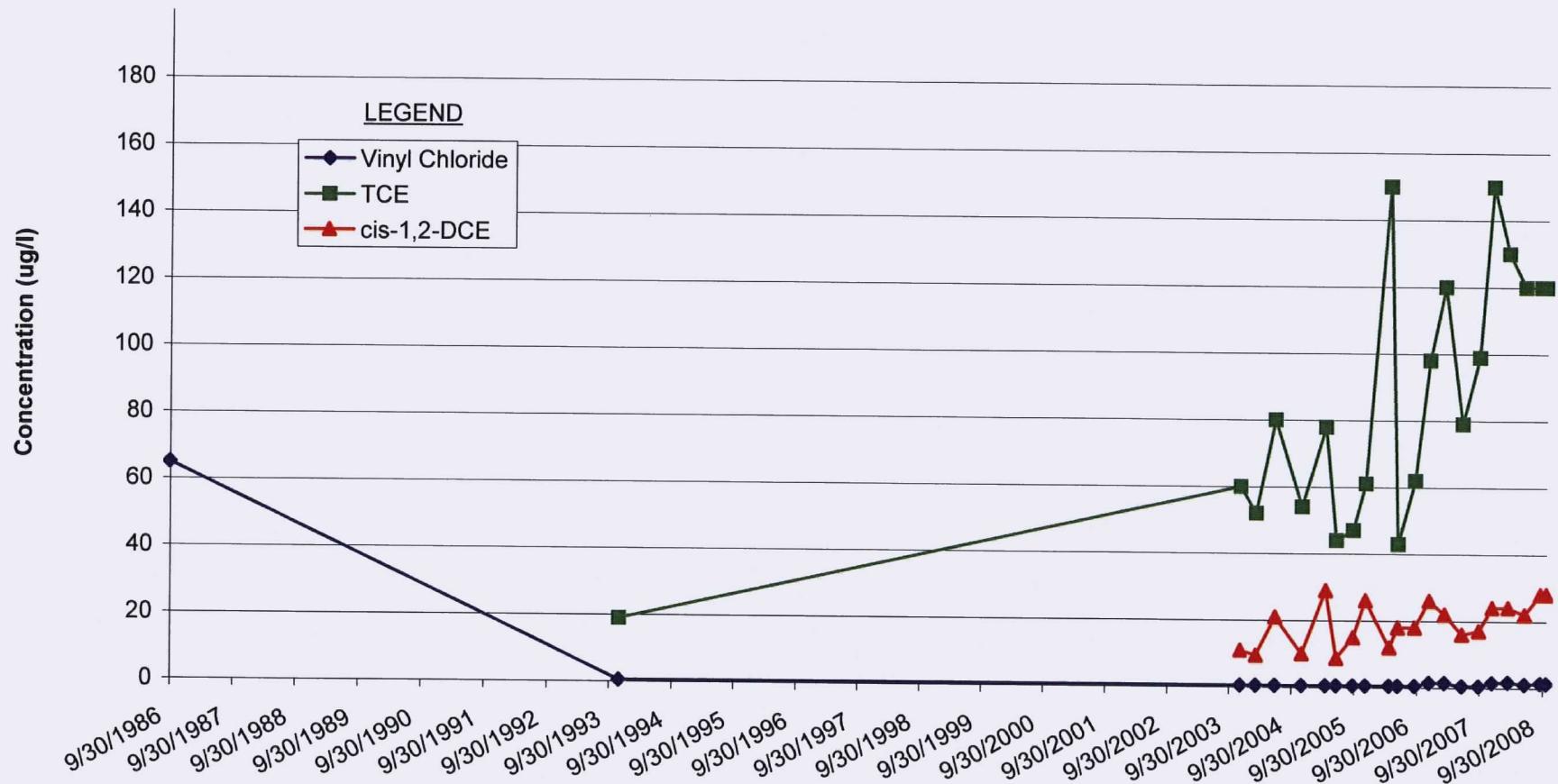
**FIGURE 17**  
**MW-3I**  
**VC, TCE, and cis-1,2-DCE Concentrations Over Time**  
**October 2008 Quarterly Monitoring Event**  
**Rose Township Site**  
**Holly, Michigan**



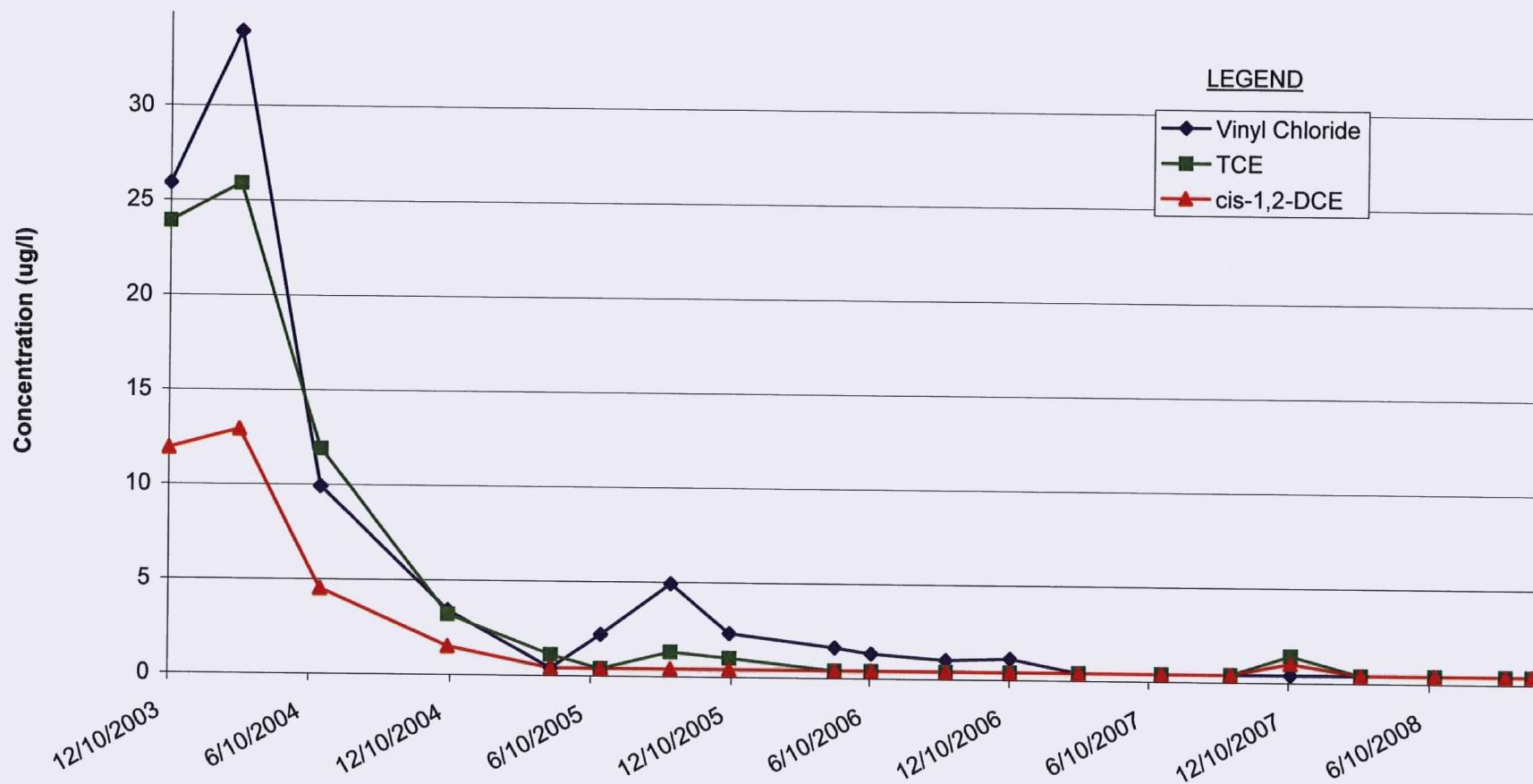
**FIGURE 18**  
**MW-103S**  
**VC, TCE, and cis-1,2-DCE Concentrations Over Time**  
**October 2008 Quarterly Monitoring Event**  
**Rose Township Site**  
**Holly, Michigan**



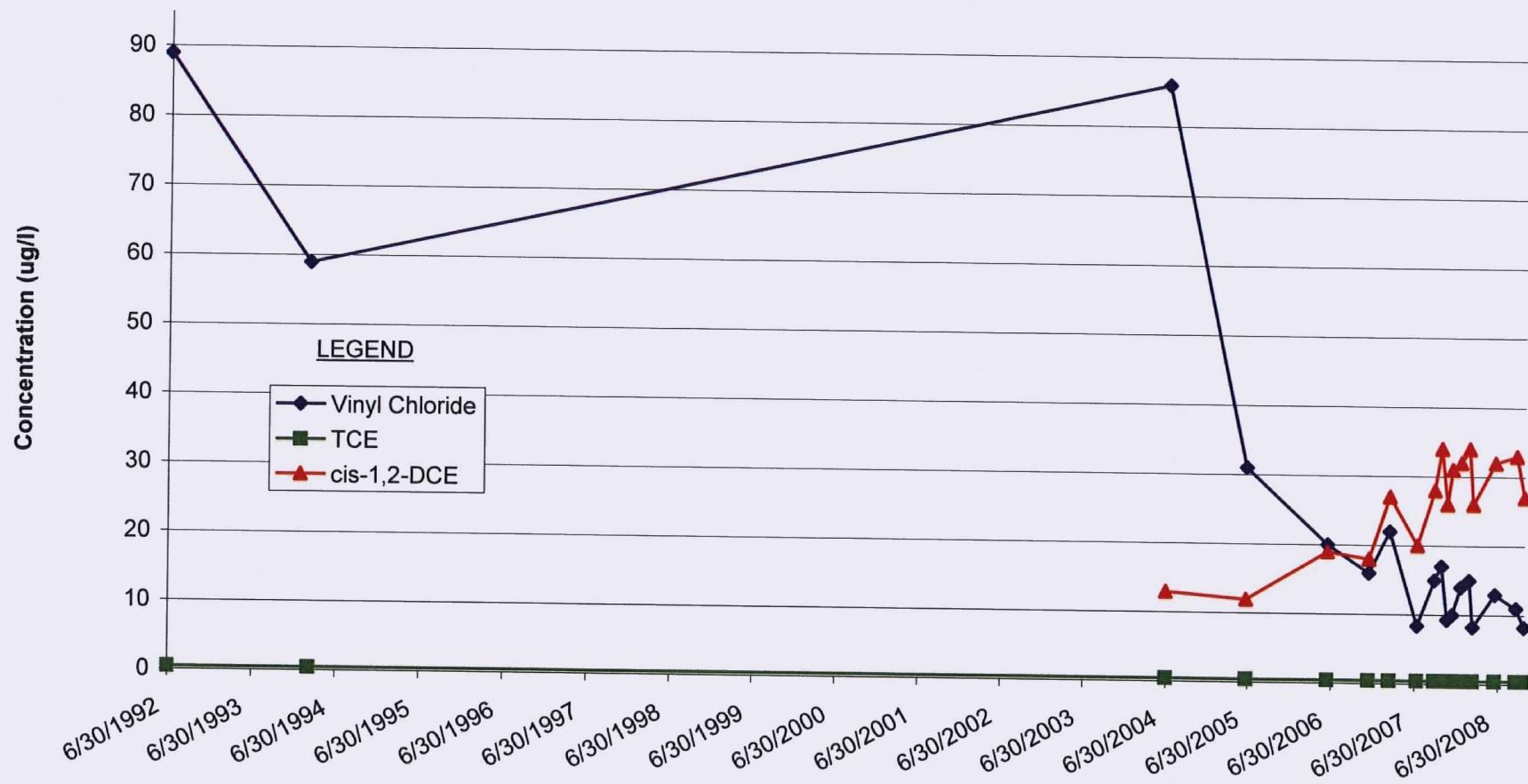
**FIGURE 19**  
**RW-1D**  
**VC, TCE, and cis-1,2-DCE Concentrations Over Time**  
**October 2008 Quarterly Monitoring Event**  
**Rose Township Site**  
**Holly, Michigan**



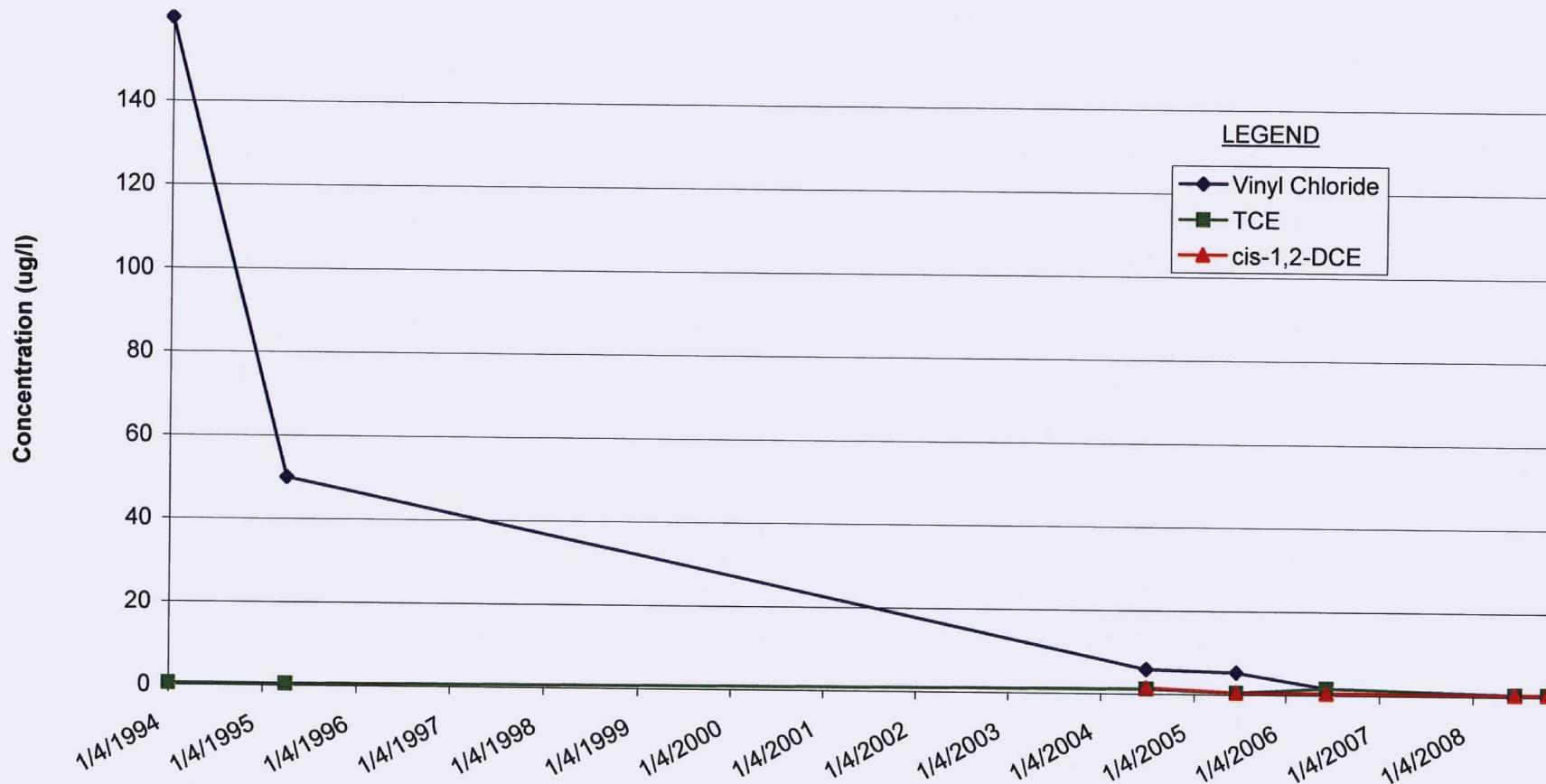
**FIGURE 20**  
**RW-5S**  
**VC, TCE, and cis-1,2-DCE Concentrations Over Time**  
**October 2008 Quarterly Monitoring Event**  
**Rose Township Site**  
**Holly, Michigan**



**FIGURE 21**  
**PW-1**  
**VC, TCE and cis-1,2-DCE Concentrations Over Time**  
**October 2008 Quarterly Monitoring Event**  
**Rose Township Site**  
**Holly, Michigan**



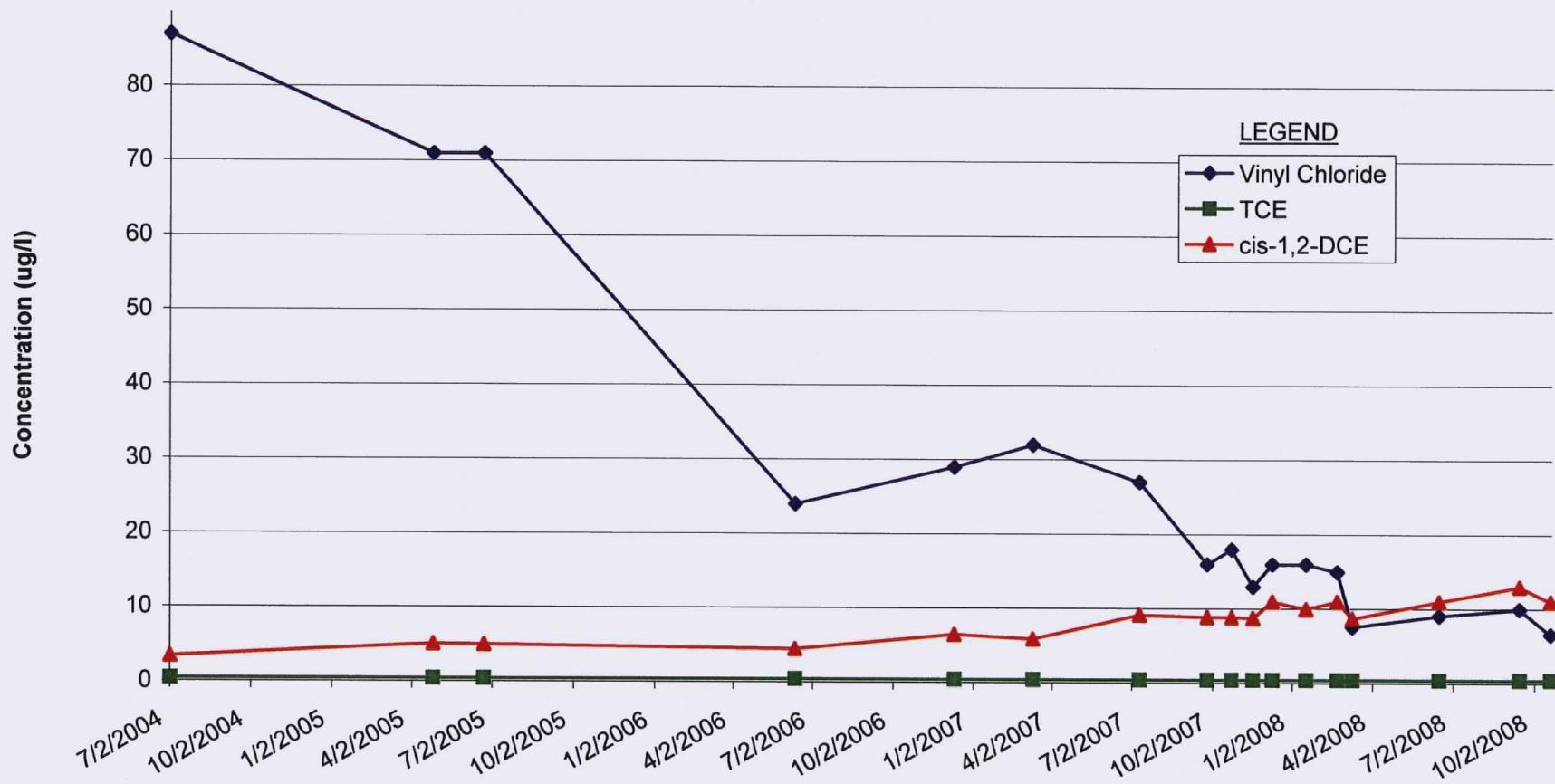
**FIGURE 22**  
**PW-3**  
**VC, TCE, and cis-1,2-DCE Concentrations Over Time**  
**October 2008 Quarterly Monitoring Event**  
**Rose Township Site**  
**Holly, Michigan**



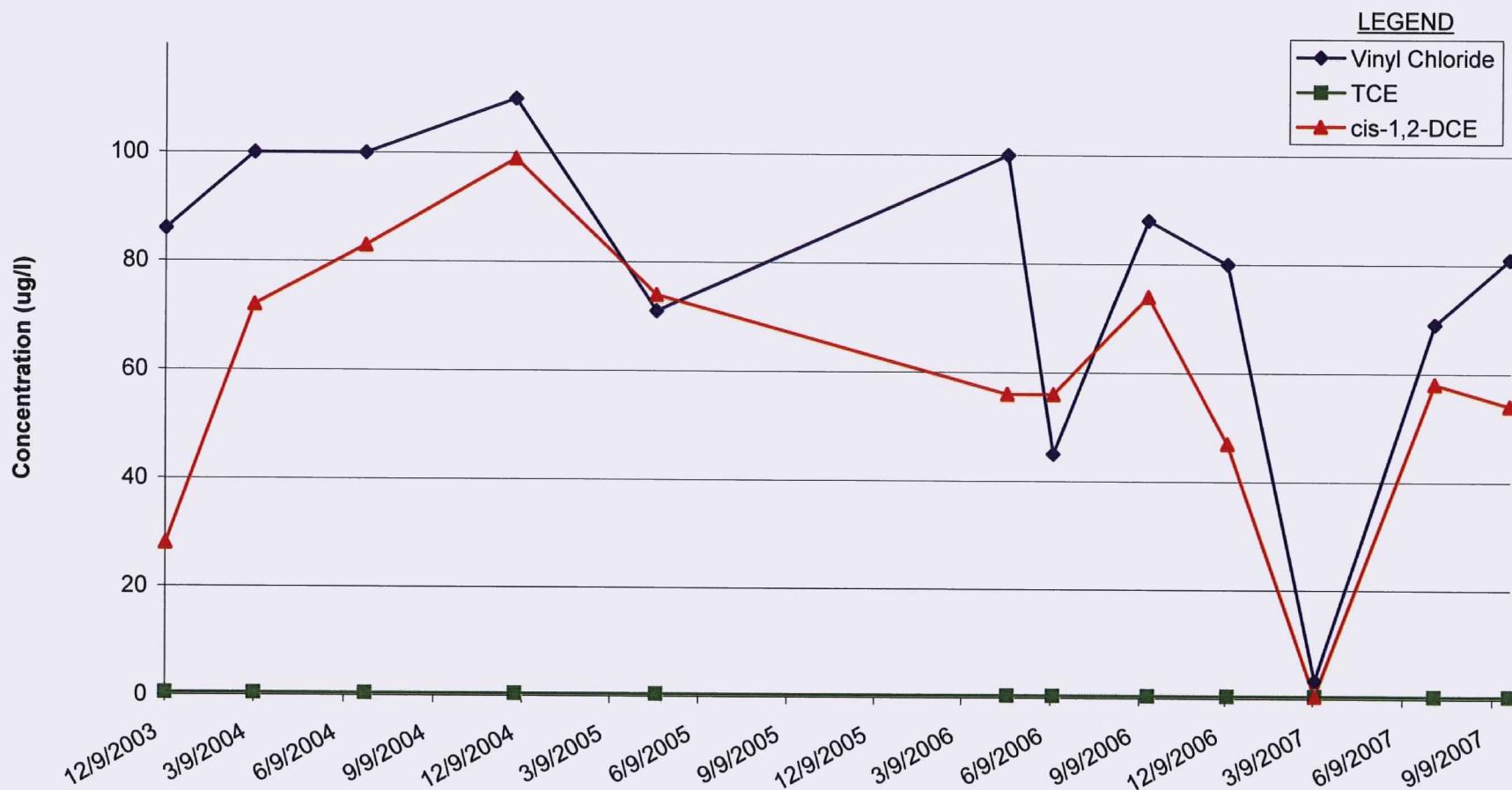
**FIGURE 23**  
**PW-4**  
**VC, TCE, and cis-1,2-DCE Concentrations Over Time**  
**October 2008 Quarterly Monitoring Event**  
**Rose Township Site**  
**Holly, Michigan**



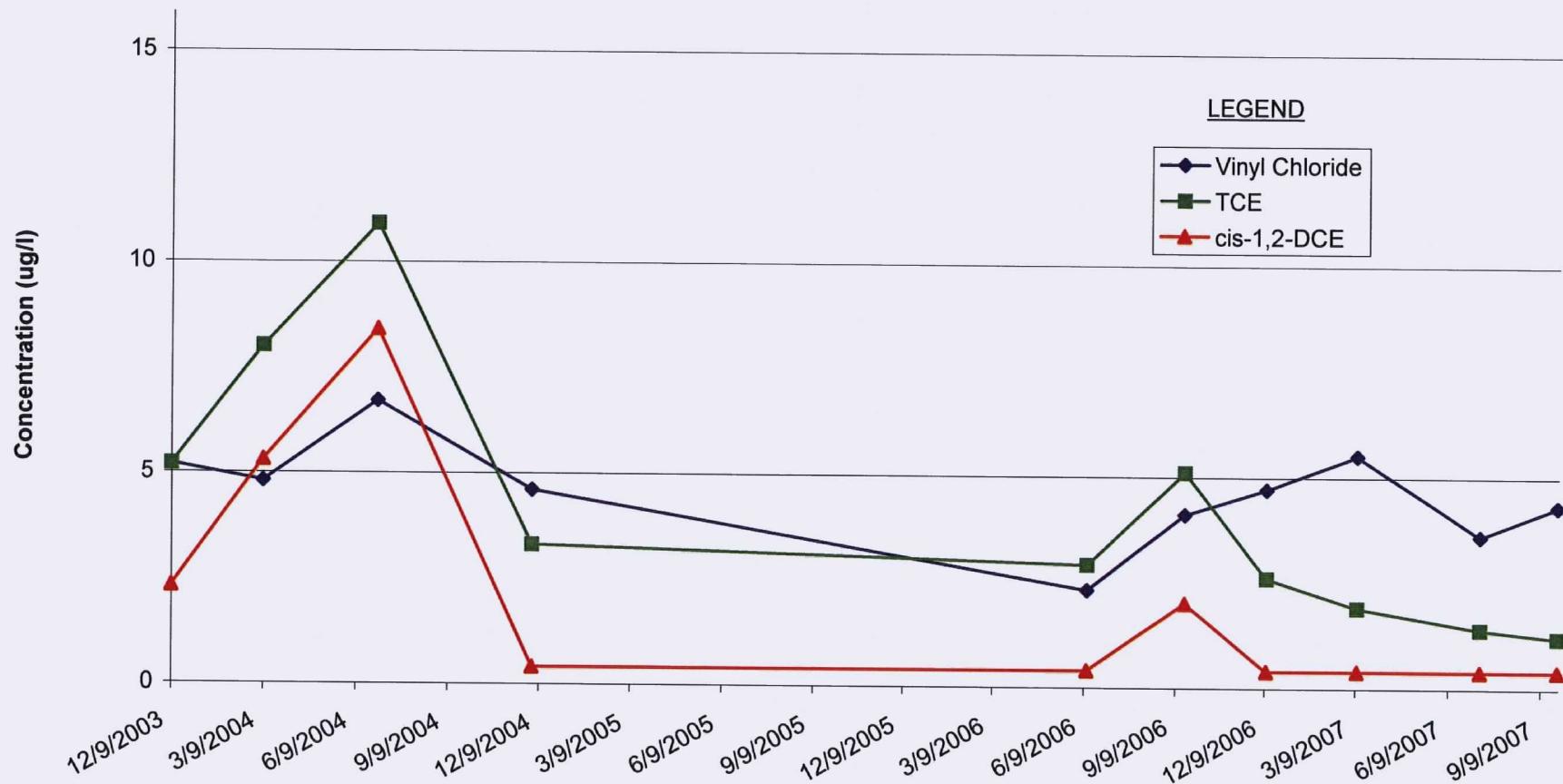
**FIGURE 24**  
**PW-6**  
**VC, TCE, and cis-1,2-DCE Concentrations Over Time**  
**October 2008 Quarterly Monitoring Event**  
**Rose Township Site**  
**Holly, Michigan**

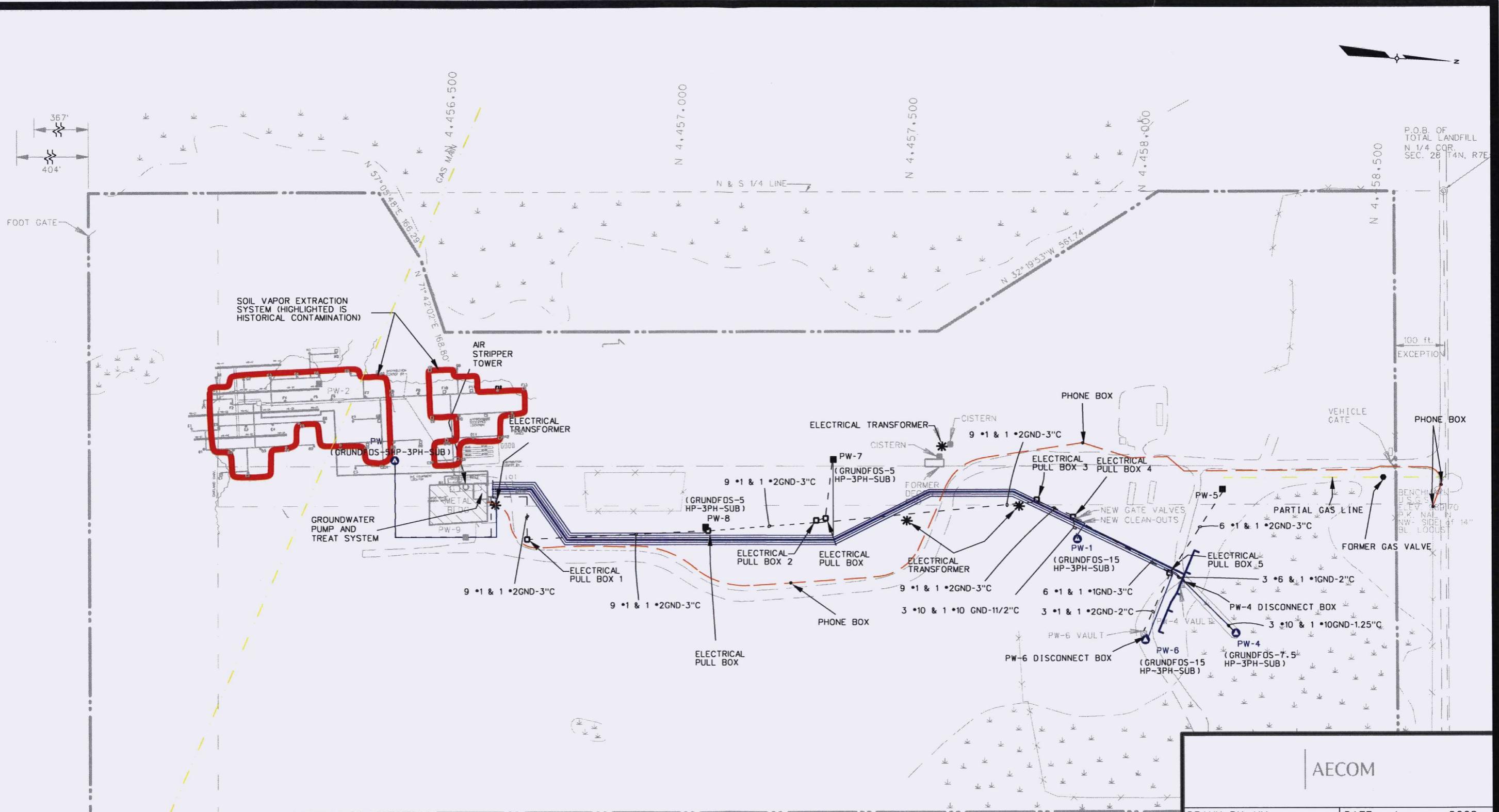


**FIGURE 25**  
**PW-7**  
**VC, TCE, and cis-1,2-DCE Concentrations Over Time**  
**October 2008 Quarterly Monitoring Event**  
**Rose Township Site**  
**Holly, Michigan**



**FIGURE 26**  
**PW-8**  
**VC, TCE, and cis-1,2-DCE Concentrations Over Time**  
**October 2008 Quarterly Monitoring Event**  
**Rose Township Site**  
**Holly, Michigan**





## LEGEND:

- — — SECTION LINE  
— PROPERTY LINE  
- - - LOT LINE  
× × × FENCE LINE  
↑ ↓ ↑ WETLAND

- PHONE BOX
  - ▲ EXISTING ACTIVE EXTRACTION WELL
  - EXISTING INACTIVE EXTRACTION WELL
  - ELECTRICAL PULL BOXES

— - - - - GAS TRANSMISSION LINE

— - - - - PHONE LINE

— - - - - ELECTRICAL TRANSMISSION LINE

AECOM

DRAWN BY: VM DATE: January 2009  
CHECKED BY: EDITED BY: SC012309  
FILE NAME: 106686\_04\_2008\_Fig27.dwg

**FIGURE 27**

## SVE AND GROUNDWATER SYSTEMS LOCATION MAP

ROSE TOWNSHIP  
HOLLY, MICHIGAN

PROJECT NUMBER 106686 SCALE: NTS

## **Tables**

**Table 1**  
**Summary of Groundwater Level Elevations**  
**Rose Township Demode Road Site**  
**Holly, Michigan**

Well ID	Northing	Easting	Top of Casing Elevation (ft. AMSL)	Ground Surface Elevation (ft. AMSL)	Screened Interval		Screen Length (feet)	Screened Interval		Total Depth (ft. BGS)	Total Depth (ft. AMSL)	Flowing Well	October 17, 2008	
					Screen Minimum Depth (ft. BGS)	Screen Maximum Depth (ft. BGS)		Screen Minimum Depth (ft. AMSL)	Screen Maximum Depth (ft. AMSL)				Water Level Measurement (ft ATOC)	Head Elevation (ft AMSL)
DNR-1	444677.19	13319929.47	1000.65	1004.00	51.0	53.0	2.0	953.0	951.0	53.0	951.0	Yes	2.53	1003.18
DNR-2	444939.57	13319748.06	997.33	1000.60	93.0	95.0	2.0	907.6	905.6	95.0	905.6	Yes	6.07	1003.40
DNR-3	445688.24	13320139.49	996.92	1002.40	82.0	84.0	2.0	920.4	918.4	84.0	918.4	Yes		NM†
DNR-4S	447532.39	13320808.49	981.20	978.70	48.0	53.0	5.0	930.7	925.7	53.0	925.7	Yes	11.80	993.00
DNR-4I	447532.60	13320802.39	981.33	979.33	79.0	84.0	5.0	900.3	895.3	84.0	895.3	Yes	11.96	993.29
DNR-4D	447539.01	13320810.89	978.50	979.10	116.0	118.0	2.0	863.1	861.1	118.0	861.1	Yes	-0.15	978.35
DNR-5	446988.03	13320380.71	998.14	1001.70	97.0	99.0	2.0	904.7	902.7	99.0	902.7	Yes	-2.01	996.13
DNR-6	446826.83	13320695.53	996.58	992.56	68.0	70.0	2.0	924.6	922.6	70.0	922.6	Yes	-65.09	931.49
DNR-7	446708.57	13320500.96	1031.85	1032.20	79.0	81.0	2.0	953.2	951.2	81.0	951.2	No	-36.13	995.72
GW-1S	447405.64	13320473.72	980.33	977.70	NA	NA	NA	NA	NA	NA	NA	Yes		NM†
GW-1I	447402.39	13320468.56	979.91	976.91	91.0	96.0	5.0	885.9	880.9	96.0	880.9	Yes	14.15	994.06
GW-1D	447416.34	13320470.01	980.48	977.73	122.0	127.0	5.0	855.7	850.7	127.0	850.7	Yes	15.12	995.60
GW-2	446973.75	13320794.04	981.34	978.34	40.5	45.5	5.0	937.8	932.8	45.5	932.8	Yes		NM†
GW-3S	446734.78	13320830.55	990.87	987.87	62.0	67.0	5.0	925.9	920.9	67.0	920.9	Yes		NM†
GW-3I	446734.78	13320830.55	991.13	988.63	79.5	84.5	5.0	909.1	904.1	84.5	904.1	Yes	4.06	995.19
GW-3D	446734.78	13320830.55	990.60	988.60	98.0	103.0	5.0	890.6	885.6	103.0	885.6	Yes	4.40	995.00
GW-4S	447577.63	13321047.35	978.23	975.56	58.0	63.0	5.0	917.6	912.6	63.0	912.6	Yes		NM†
GW-4I	447574.64	13321040.42	977.35	974.60	85.0	90.0	5.0	889.6	884.6	90.0	884.6	Yes	15.66	993.01
GW-4D	447574.24	13321030.39	977.27	974.60	109.0	114.0	5.0	865.6	860.6	114.0	860.6	Yes	11.80	989.07
GW-5S	446928.46	13320739.18	983.89	982.39	52.0	57.0	5.0	930.4	925.4	57.0	925.4	Yes	-4.03	979.86
GW-5I	446933.48	13320734.62	984.53	982.57	70.0	75.0	5.0	912.6	907.6	75.0	907.6	Yes	6.43	990.96
GW-5D	446932.99	13320740.73	984.66	982.28	90.5	95.5	5.0	891.8	886.8	95.5	886.8	Yes	-0.39	984.27
GW-6S	447038.22	13320589.52	982.42	981.00	54.0	59.0	5.0	927.0	922.0	59.0	922.0	Yes	4.45	986.87
GW-6I	447048.80	13320585.72	982.43	979.89	73.0	78.0	5.0	906.9	901.9	78.0	901.9	Yes	0.00	982.43
GW-6D	447043.97	13320590.86	982.09	979.84	92.0	97.0	5.0	887.8	882.8	97.0	882.8	Yes	11.31	993.40
GW-7S	446806.97	13320309.58	1025.20	1022.32	24.0	29.0	5.0	998.3	993.3	29.0	993.3	No	-25.74	999.46
GW-7I	446802.93	13320309.59	1025.24	1022.95	69.5	74.5	5.0	953.5	948.5	74.5	948.5	No	-28.90	996.34
GW-8S	446703.98	13320502.98	1031.99	1029.66	36.0	41.0	5.0	993.7	988.7	41.0	988.7	No	-35.00	996.99
GW-9S	446379.76	13320544.39	1038.33	1035.91	35.5	40.5	5.0	1000.4	995.4	40.5	995.4	No	-36.98	1001.35
GW-10S	447114.18	13320396.37	989.70	987.24	75.0	80.0	5.0	912.2	907.2	80.0	907.2	Yes	2.96	992.66
GW-10I	447122.52	13320399.72	989.58	986.87	98.0	103.0	5.0	888.9	883.9	103.0	883.9	Yes	5.54	995.12
GW-10D	447119.94	13320403.80	989.50	986.67	120.0	125.0	5.0	866.7	861.7	125.0	861.7	Yes	6.09	995.59
GW-11S	446409.53	13320733.82	1030.19	1027.69	46.5	51.5	5.0	981.2	976.2	51.5	976.2	No	-31.64	998.55
GW-11I	446402.35	13320728.06	1030.29	1027.83	135.0	140.0	5.0	892.8	887.8	140.0	887.8	No	-31.25	999.04
GW-11D	446404.83	13320734.18	1030.05	1027.51	183.0	188.0	5.0	844.5	839.5	188.0	839.5	No	-25.94	1004.11
GW-12S	446013.89	13320755.24	1031.12	1028.29	65.5	70.5	5.0	962.8	957.8	70.5	957.8	No	-29.93	1001.19
GW-12I	445997.47	13320748.12	1030.52	1027.64	138.0	143.0	5.0	889.6	884.6	143.0	884.6	No	-29.61	1000.91
GW-12D	446004.63	13320753.73	1031.01	1028.13	191.0	196.0	5.0	837.1	832.1	196.0	832.1	No	-26.75	1004.26
GW-13S	446998.74	13320264.22	1009.84	1006.96	75.0	80.0	5.0	932.0	927.0	80.0	927.0	No	-14.69	995.15
GW-13I	446997.63	13320254.84	1010.12	1006.99	92.0	97.0	5.0	915.0	910.0	102.0	905.0	No	-13.60	996.52
GW-13D	446996.88	13320273.21	1009.60	1006.72	120.0	125.0	5.0	886.7	881.7	140.0	866.7	No	-13.18	996.42
GW-14	447085.90	13320445.08	990.08	986.87	176.0	181.0	5.0	810.9	805.9	240.0	746.9	Yes	6.65	996.73
GW-15	447219.87	13320274.36	985.85	9										

**Table 1**  
**Summary of Groundwater Level Elevations**  
**Rose Township Demode Road Site**  
**Holly, Michigan**

Well ID	Northing	Easting	Top of Casing Elevation (ft. AMSL)	Ground Surface Elevation (ft. AMSL)	Screened Interval		Screen Length (feet)	Screened Interval		Total Depth (ft. BGS)	Total Depth (ft. AMSL)	Flowing Well	October 17, 2008	
					Screen Minimum Depth (ft. BGS)	Screen Maximum Depth (ft. BGS)		Screen Minimum Depth (ft. AMSL)	Screen Maximum Depth (ft. AMSL)				Water Level Measurement (ft ATOC)	Head Elevation (ft AMSL)
MW101-D	446998.14	13319973.18	1004.49	1001.35	87.0	92.0	5.0	914.4	909.4	92.0	909.4	No	-6.46	998.03
MW102-I	446857.96	13320520.17	1009.37	1006.70	78.0	80.0	2.0	928.7	926.7	80.0	926.7	No	-14.09	995.28
MW102-D	446842.77	13320518.72	1010.77	1008.48	111.5	116.5	5.0	897.0	892.0	116.5	892.0	No	-15.58	995.19
MW103-S	446383.27	13320544.02	1038.10	1036.18	93.0	98.0	5.0	943.2	938.2	98.0	938.2	No	-39.96	998.14
MW104-S	446164.83	13320701.00	1037.38	1034.42	37.0	39.0	2.0	997.4	995.4	39.0	995.4	No	-36.29	1001.09
MW104-I	446142.88	13320686.20	1037.05	1034.30	69.0	77.0	8.0	965.3	957.3	77.0	957.3	No	-35.94	1001.11
MW105-S	446112.57	13320151.84	1007.08	1003.70	25.0	30.0	5.0	978.7	973.7	30.0	973.7	No	-6.55	1000.53
MW105-I	446102.22	13320160.52	1008.95	1006.20	40.0	45.0	5.0	966.2	961.2	45.0	961.2	No	-8.92	1000.03
MW105-D	446121.94	13320176.55	1008.74	1005.99	90.0	100.0	10.0	916.0	906.0	100.0	906.0	No	-10.08	998.66
MW106-D	445808.57	13320279.68	1020.06	1017.39	90.0	95.0	5.0	927.4	922.4	95.0	922.4	No	-18.86	1001.20
MW107-I	445307.04	13319939.26	996.49	995.70	52.0	54.0	2.0	943.7	941.7	54.0	941.7	Yes	6.96	1003.45
MW107-D	445310.25	13319926.43	995.34	993.88	71.0	76.0	5.0	922.9	917.9	76.0	917.9	Yes	6.62	1001.96
MW108-I	445453.13	13320783.82	1052.51	1049.80	60.0	65.0	5.0	989.8	984.8	65.0	984.8	No	-50.61	1001.90
MW108-D	445460.68	13320811.77	1051.24	1048.49	76.0	78.0	2.0	972.5	970.5	78.0	970.5	No	-49.38	1001.86
MW109-D	444977.98	13320912.98	1046.69	1044.02	144.0	149.0	5.0	900.0	895.0	149.0	895.0	No	-44.24	1002.45
MW110-S	444435.24	13320447.67	1014.42	1011.00	47.0	49.0	2.0	964.0	962.0	49.0	962.0	No	-9.07	1005.35
MW110-I	444435.24	13320447.67	1013.78	1010.70	77.0	79.0	2.0	933.7	931.7	79.0	931.7	No	-8.78	1005.00
MW110-D	444435.24	13320447.67	1013.46	1010.80	122.0	127.0	5.0	888.8	883.8	127.0	883.8	No	-7.96	1005.50
MW-111-I	444233.00	13319687.50	1011.83	1008.70	70.0	75.0	5.0	938.7	933.7	75.0	933.7	No	-5.96	1005.87
PW-1	446807.02	13320515.22	1015.26	1012.80	48.3	80.0	31.8	964.6	932.8	80.0	932.8	No	-32.69	982.57
PW-2	445155.78	13320245.80	1025.71	1023.38	44.6	80.0	35.4	978.8	943.4	80.0	943.4	No	-23.75	1001.96
PW-3	445329.15	13320406.91	1036.42	1034.67	38.1	70.0	31.9	996.6	964.7	70.0	964.7	No	-41.55	994.87
PW-4	447149.39	13320705.72	978.83	976.00	92.0	122.0	30.0	884.0	854.0	122.0	854.0	Yes	NM **	
PW-5	447106.28	13320399.90	990.10	987.85	89.4	122.0	32.6	898.4	865.9	122.0	865.9	Yes	NM **	
PW-6	446954.18	13320724.28	984.42	981.84	67.0	112.0	45.0	914.8	869.8	112.0	869.8	Yes	NM **	
PW-7	446273.90	13320361.95	1030.96	1027.88	32.0	102.0	70.0	995.9	925.9	102.0	925.9	No	NM	
PW-8	446008.82	13320516.99	1038.71	1036.21	39.0	115.0	76.0	997.2	921.2	115.0	921.2	No	-38.85	999.86
PW-9	445484.71	13320563.03	1044.54	1042.00	40.0	100.0	60.0	1002.0	942.0	100.0	942.0	No	-42.79	1001.75
RW-1	445816.02	13320285.19	1019.94	1016.91	27.0	30.0	3.0	989.9	986.9	30.0	986.9	No	-18.51	1001.43
RW-1D	445814.18	13320287.33	1019.53	1017.09	66.5	69.5	3.0	950.6	947.6	69.5	947.6	No	-18.25	1001.28
RW-2	445567.73	13320631.06	1050.02	1046.35	45.0	48.0	3.0	1001.4	998.4	48.0	998.4	No	-48.25	1001.77
RW-3	445227.94	13320641.44	1052.52	1050.17	54.0	57.0	3.0	996.2	993.2	57.0	993.2	No	Destroyed	
RW-4	445432.81	13320232.98	1023.66	1023.43	29.0	32.0	3.0	994.4	991.4	32.0	991.4	No	-21.87	1001.79
RW-5S	445386.38	13320451.25	1039.78	1037.50	47.0	50.0	3.0	990.5	987.5	50.0	987.5	No	-38.12	1001.66
RW-5D	445387.01	13320453.46	1039.21	1037.15	60.0	65.0	5.0	977.1	972.1	65.0	972.1	No	-37.47	1001.74
RW-6	444918.80	13320457.14	1026.42	1023.59	31.0	34.0	3.0	992.6	989.6	34.0	989.6	No	-24.15	1002.27
RW-6D	444917.67	13320452.43	1026.98	1023.48	66.0	69.0	3.0	957.5	954.5	69.0	954.5	No	-24.76	1002.22
RW-7	445120.68	13320242.82	1022.74	1020.11	13.5	18.5	5.0	1006.6	1001.6	18.5	1001.6	No	Dry	
RW-8	445233.79	13320192.70	1023.06	1020.31	37.0	40.0	3.0	983.3	980.3	40.0	980.3	No	-21.16	1001.90
RW-8D	445237.45	13320191.79	1022.20	1020.45	70.0	73.0	3.0	950.5	947.5	73.0	947.5	No	-20.28	1001.92
RW-9	445309.05	13319941.89	999.99	997.07	11.0	14.0	3.0	986.1	983.1	14.0	983.1	No	-8.21	991.78
RW-10	445809.13	13320706.46	1023.13	1019.92	15.0	18.0	3.0	1004.9	1001.9	18.0	1001.9	No	-10.20	1012.93

**Table 2**  
**Summary of VOC Analytical Results in Groundwater Samples**  
**Rose Township Demode Road Site**  
**Holly, Michigan**  
**Samples Collected October 20 through October 29, 2008**

Volatile Organic Compounds (µg/L)	ROD Target Cleanup Levels <sup>A</sup>		2004 Federal Drinking Water Maximum Contaminant Levels in µg/L	MDEQ Part 201 Generic Cleanup Criteria Concentration in µg/L			Sample Location Concentration in µg/L																	
	Phase I Target Concentration Limits in µg/L	Phase II Target Concentration Limits in µg/L		Residential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Groundwater Contact Criteria	DNR-1	DNR-3	DNR-4D	DNR-5	DNR-5 Duplicate	DNR-7	GW-1I	GW-3I	GW-4D	GW-5D	GW-5I	GW-6D	GW-6I	GW-12I	GW-16	GW-16 Duplicate	GW-17D	
Benzene	1.5	0.133	5	5	200	11,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Carbon Disulfide	---	---	---	800	ID	1,200,000	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
Chlorobenzene	60	60	100	100	47	86,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Chloroethane	---	---	---	430	ID	440,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	31	<1.0	<1.0	<1.0	4.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	---	---	---	260	ID	490,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
1,1-Dichloroethane	---	---	---	880	740	2,400,000	<1.0	<1.0	<1.0	<1.0	<1.0	10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
1,1-Dichloroethene	---	---	7.0	7.0	65	11,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
cis-1,2-Dichloroethene	---	---	70	70	620	200,000	<1.0	<1.0	<1.0	<1.0	<1.0	140	<1.0	<1.0	<1.0	32	1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Ethylbenzene	680	680	700	74	18	170,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Toluene	2,000	2,000	1,000	790	140	530,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
trans-1,2-Dichloroethene	---	---	100	100	1500	220,000	<1.0	<1.0	<1.0	<1.0	<1.0	29	<1.0	<1.0	<1.0	1.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Trichloroethene	1.5	0.627	5.0	5.0	200	22,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	8.7	
Vinyl Chloride	1.0	0.003	2.0	2.0	15	1,000	<1.0	<1.0	<1.0	<1.0	<1.0	79	<1.0	<1.0	<1.0	2.3	41	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Xylenes (Total)	440	440	10,000	280	35	130,000	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	

**Notes:**

- ROD - Record of Decision, EPA September 30, 1987.
- A - Phase I and Phase II TCLs as identified in the Remedial Design and Remedial Action Work Plan (Fred C. Hart Associates, Inc., et al, September 18, 1989).
- MDEQ - Michigan Department of Environmental Quality.
- ID - Inadequate data for MDEQ to develop criterion.
- B - The analyte was also detected in the associated method blank. The sample result is considered estimated.
- <1.0 - Not detected above the analytical method reporting limits. The analytical method reporting limit following the "less than" symbol.
- µg/L - Micrograms per liter.
- - No standard available.
- 160** - Shading indicates an exceedance of one or more criteria (ROD Target Cleanup Levels, MCLs, MDEQ Part 201).

**Table 2**  
**Summary of VOC Analytical Results in Groundwater Samples**  
**Rose Township Demode Road Site**  
**Holly, Michigan**  
**Samples Collected October 20 through October 29, 2008**

Volatile Organic Compounds ( $\mu\text{g/L}$ )	ROD Target Cleanup Levels <sup>A</sup>		2004 Federal Drinking Water Maximum Contaminant Levels in $\mu\text{g/L}$	MDEQ Part 201 Generic Cleanup Criteria Concentration in $\mu\text{g/L}$			Sample Location Concentration in $\mu\text{g/L}$																
	Phase I Target Concentration Limits in $\mu\text{g/L}$	Phase II Target Concentration Limits in $\mu\text{g/L}$		Residential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Groundwater Contact Criteria	GW-17D Duplicate	GW-17I	GW-18	GW-19D	GW-19S	GW-20D	GW-20I	GW-20I Duplicate	GW-21D	GW-21S	GW-22D	GW-22I	GW-22S	GW-23D	GW-23I	GW-23S	GW-24D
Benzene	1.5	0.133	5	5	200	11,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Carbon Disulfide	--	--	--	800	ID	1,200,000	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
Chlorobenzene	60	60	100	100	47	86,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Chloroethane	--	--	--	430	ID	440,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Chloromethane	--	--	--	260	ID	490,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
1,1-Dichloroethane	--	--	--	880	740	2,400,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
1,1-Dichloroethene	--	--	7.0	7.0	65	11,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
cis-1,2-Dichloroethene	--	--	70	70	620	200,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Ethylbenzene	680	680	700	74	18	170,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Toluene	2,000	2,000	1,000	790	140	530,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
trans-1,2-Dichloroethene	--	--	100	100	1500	220,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Trichloroethene	1.5	0.627	5.0	5.0	200	22,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Vinyl Chloride	1.0	0.003	2.0	2.0	15	1,000	8.6	<1.0	9.7	<1.0	<1.0	11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (Total)	440	440	10,000	280	35	130,000	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	

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**Table 2**  
**Summary of VOC Analytical Results in Groundwater Samples**  
**Rose Township Demode Road Site**  
**Holly, Michigan**  
**Samples Collected October 20 through October 29, 2008**

Volatile Organic Compounds (µg/L)	ROD Target Cleanup Levels <sup>A</sup>		2004 Federal Drinking Water Maximum Contaminant Levels in µg/L	MDEQ Part 201 Generic Cleanup Criteria Concentration in µg/L			Sample Location Concentration in µg/L																
	Phase I Target Concentration Limits in µg/L	Phase II Target Concentration Limits in µg/L		Residential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Groundwater Contact Criteria	GW-24I	GW-26D	GW-25I	GW-26D	GW-26I	GW-28D	GW-28I	GW-29	MW-2I	MW-3I	MW-102D	MW-103S	MW-107I	MW-108D	MW-109D	PW-1	PW-3
Benzene	1.5	0.133	5	5	200	11,000	<1.0	<1.0	<1.0	<1.0	<1.0	1.7	4.8	4.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.3	
Carbon Disulfide	--	--	--	800	ID	1,200,000	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
Chlorobenzene	60	60	100	100	47	86,000	<1.0	<1.0	<1.0	<1.0	<1.0	5.3	10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	42	
Chloroethane	--	--	--	430	ID	440,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Chloromethane	--	--	--	260	ID	490,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
1,1-Dichloroethane	--	--	--	880	740	2,400,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	7.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.5	<1.0
1,1-Dichloroethene	--	--	7.0	7.0	65	11,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
cis-1,2-Dichloroethene	--	--	70	70	620	200,000	<1.0	<1.0	<1.0	<1.0	<1.0	110	15	2.9	<1.0	1.2	<1.0	1.7	<1.0	<1.0	<1.0	27	<1.0
Ethylbenzene	680	680	700	74	18	170,000	<1.0	<1.0	<1.0	<1.0	<1.0	13	8.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	6.8	
Toluene	2,000	2,000	1,000	790	140	530,000	<1.0	<1.0	<1.0	<1.0	<1.0	2.3	2.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	23	
trans-1,2-Dichloroethene	--	--	100	100	1500	220,000	<1.0	<1.0	<1.0	<1.0	<1.0	67	56	26	<1.0	2.3	<1.0	<1.0	<1.0	<1.0	<1.0	4.4	<1.0
Trichloroethene	1.5	0.627	5.0	5.0	200	22,000	<1.0	<1.0	<1.0	<1.0	<1.0	11	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	8.3	<1.0
Vinyl Chloride	1.0	0.003	2.0	2.0	15	1,000	<1.0	<1.0	<1.0	<1.0	<1.0	97	200	250	6.4	16	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (Total)	440	440	10,000	280	35	130,000	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	10	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	14	

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Volatile Organic Compounds ( $\mu\text{g/L}$ )	ROD Target Cleanup Levels <sup>A</sup>		2004 Federal Drinking Water Maximum Contaminant Levels in $\mu\text{g/L}$	MDEQ Part 201 Generic Cleanup Criteria Concentration in $\mu\text{g/L}$			Sample Location Concentration in $\mu\text{g/L}$								
	Phase I Target Concentration Limits in $\mu\text{g/L}$	Phase II Target Concentration Limits in $\mu\text{g/L}$		Residential Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Groundwater Contact Criteria	PW-4	PW-6	PW-8	PW-9	RW-1	RW-1D	RW-2	RW-5S	RW-5S Duplicate
Benzene	1.5	0.133	5	5	200	11,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon Disulfide	---	--	--	800	ID	1,200,000	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	60	60	100	100	47	86,000	<1.0	<1.0	<1.0	<1.0	32	<1.0	<1.0	4.3	4.4
Chloroethane	---	--	--	430	ID	440,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane	---	--	--	260	ID	490,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	---	--	--	880	740	2,400,000	<1.0	<1.0	<1.0	<1.0	3.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	---	--	7.0	7.0	65	11,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-Dichloroethene	---	--	70	70	620	200,000	<1.0	11	<1.0	<1.0	3.6	28	<1.0	<1.0	<1.0
Ethylbenzene	680	680	700	74	18	170,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	2,000	2,000	1,000	790	140	530,000	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	---	--	100	100	1500	220,000	<1.0	<1.0	<1.0	<1.0	76	<1.0	<1.0	<1.0	<1.0
Trichloroethene	1.5	0.627	5.0	5.0	200	22,000	<1.0	<1.0	<1.0	<1.0	1.2	120	<1.0	<1.0	<1.0
Vinyl Chloride	1.0	0.003	2.0	2.0	15	1,000	<1.0	6.6	1.3	<1.0	1.4	<1.0	<1.0	<1.0	<1.0
Xylenes (Total)	440	440	10,000	280	35	130,000	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0

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**Summary of Historical VOC Analytical Results**  
**Rose Township Demode Road Site**  
**Holly, Michigan**

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Sample Location	Date Sampled	Parameters																							
		Vinyl Chloride	Trichloro-ethene	cis-1,2-Dichloro-ethene	Benzene	Chloro-benzene	1,1,1-Trichloro-ethane	1,1,2-Trichloro-ethane	1,1-Dichloro-ethene	1,2-Dichloro-ethene	Dichloro-propane	2-Butanone (MEK)	2-Hexanone	Acetone	Bromo-dichloro-methane	Carbon Disulfide	Carbon Tetra-chloride	Chloro-ethane	Chloroform	Ethy-benzene	Ethylene	Methylene Chloride	Tetra-chloro-ethene	Tetrahydro-furan	Toluene
DNR-5	6/20/2007	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
DNR-5	6/19/2008	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
DNR-5 (Dup)	6/19/2008	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
DNR-5	10/28/2008	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
DNR-5 (Dup)	10/28/2008	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
DNR-6	9/23/1988	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
DNR-6	6/13/1991	170	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
DNR-6	6/14/1991	230	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
DNR-6	6/30/1992	150	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
DNR-6	1/13/1994	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
DNR-6	1/13/1994	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
DNR-6	12/29/2003	130	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
DNR-6	3/11/2004	160	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
DNR-6	6/28/2004	140	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
DNR-6	12/28/2004	84	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
DNR-6	4/21/2005	130	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
DNR-6	6/28/2005	130	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
DNR-6	9/20/2005	99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
DNR-6	9/20/2005	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
DNR-6	4/26/2006	30	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<6.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
DNR-6 (Dup <sup>1</sup> )	4/26/2006	38	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<6.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
DNR-6	6/21/2006	33	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<6.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
DNR-6	9/26/2006	36	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<6.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
DNR-6	8/23/2008	0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<3.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
DNR-7	9/23/1988	180	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
DNR-7	6/14/1991	270	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
DNR-7	6/30/1992	40	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
DNR-7	8/11/1992	140	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
DNR-7	12/21/1993	140	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
DNR-7 (Dup)	12/21/1993	140	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
DNR-7	12/10/2003	360	ND	260	ND	ND	ND	4.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	14	
DNR-7	3/10/2004	260	ND	200	ND	ND	ND	4.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	12	ND	ND	7.7	ND	ND	ND	14
DNR-7 (Dup)	3/10/2004	260	ND	210	ND	ND	ND	4.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	34	ND	ND	7.7	ND	ND	ND	14
DNR-7	6/24/2004	210	ND	240	ND	ND	ND	6.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	13	ND	ND	ND	ND	ND	ND	18</

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Sample Location	Date Sampled	Parameters																							
		Vinyl Chloride	Trichloro-ethene	cis-1,2-Dichloro-ethene	Benzene	Chloro-benzene	1,1,1-Trichloro-ethane	1,1,2-Trichloro-ethane	Dichloro-ethene	1,1-Dichloro-ethene	1,2-Dichloro-ethene	Dichloro-propane	2-Butanone (MEK)	2-Hexanone	Bromo-dichloro-methane	Carbon Disulfide	Carbon Tetrachloride	Chloro-ethane	Chloroform	Ethyl-benzene	Ethylene	Methylene Chloride	Tetra-chloro-ethene	Tetrahydro-furan	Toluene
GW-6D	6/19/2008	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
GW-6D	9/20/2008	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
GW-6D	12/14/2008	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
GW-6D	3/13/2007	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
GW-6D	6/21/2007	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
GW-6D	9/25/2007	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
GW-6D	12/11/2007	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
GW-6D	3/12/2008	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
GW-6D	6/20/2008	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
GW-6D	10/22/2008	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
GW-6I	1/4/1994	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
GW-6I	6/29/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
GW-6I	7/7/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
GW-6I	6/19/2006	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
GW-6I	6/21/2007	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
GW-6I	6/20/2008	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
GW-6I	10/28/2008	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
GW-6S	1/5/1994	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
GW-7I	1/8/1994	6.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
GW-7I	4/6/1995	2.0	ND	ND	18	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
GW-7S	12/30/1993	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
GW-7S	4/6/1995	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
GW-8S	1/6/1994	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
GW-8S	1/3/1994	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
GW-12D	6/21/2006	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
GW-12D	8/22/2007	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
GW-12I	6/22/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
GW-12I	6/27/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
GW-12I (Dup)	8/27/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
GW-12I	8/13/2006	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
GW-12I	6/22/2007	<1.0																							

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**Summary of Historical VOC Analytical Results**  
**Rose Township Demode Road Site**  
**Holly, Michigan**

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**Summary of Historical VOC Analytical Results**  
**Rose Township Demode Road-Site**  
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Sample Location	Date Sampled	Parameters																							
		Vinyl Chloride	Trichloro-ethene	cis-1,2-Dichloro-ethene	Benzene	Chloro-benzene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	1,1-Dichloro-ethene	1,2-Dichloro-ethene	2-Butanone (MEK)	2-Hexanone	Acetone	Bromo-dichloro-methane	Carbon Disulfide	Carbon Tetra-chloride	Chloro-ethane	Chloroform	Ethyl-benzene	Ethylene	Methylene Chloride	Tetra-chloro-ethene	Tetrahydro-furan	Toluene	trans-1,2-Dichloro-ethene
GW-18S	12/14/2008	2.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<25	<1.0	<6.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<10	<1.0	<1.0	<3.0
GW-18S (Dup)	12/14/2008	2.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<10	<1.0	<1.0	<3.0
GW-18S	3/10/2007	1.7	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<10	<1.0	<1.0	<3.0
GW-18S	6/25/2007	1.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<10	<1.0	<1.0	<3.0
GW-18S	9/24/2007	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<10	<1.0	<1.0	<3.0
GW-18S	12/10/2007	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<10	<1.0	<1.0	<3.0
GW-18S	3/12/2008	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<10	<1.0	<1.0	<3.0
GW-18S	6/23/2008	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<10	<1.0	<1.0	<3.0
GW-18S (Dup)	6/23/2008	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<10	<1.0	<1.0	<3.0
GW-18S	9/16/2008	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<10	<1.0	<1.0	<3.0
GW-18S	10/23/2008	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<10	<1.0	<1.0	<3.0
GW-18S	10/23/2008	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<10	<1.0	<1.0	<3.0
GW-18S	10/23/2008	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<10	<1.0	<1.0	<3.0
GW-20D	3/6/2004	12	ND	ND	ND	ND	ND	ND	ND	ND	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW-20D	6/30/2004	9.6	ND	ND	ND	ND	ND	ND	ND	ND	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW-20D	12/6/2004	10	ND	ND	ND	ND	ND	ND	ND	ND	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW-20D	4/27/2005	20	ND	ND	ND	ND	ND	ND	ND	ND	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW-20D	7/6/2005	22	ND	ND	ND	ND	ND	ND	ND	ND	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW-20D	9/27/2005	20	ND	ND	ND	ND	ND	ND	ND	ND	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
GW-20D	12/12/2005	26	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<10	<1.0	<1.0	<3.0
GW-20D	4/19/2006	26	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<10	<1.0	<1.0	<3.0
GW-20D	6/20/2006	24	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<10	<1.0	<1.0	<3.0
GW-20D	6/20/2006	26	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<10	<1.0	<1.0	<3.0
GW-20D	9/25/2006	20	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<10	<1.0	<1.0	<3.0
GW-20D	12/14/2006	23	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<10	<1.0	<1.0	<3.0
GW-20D	3/12/2007	21	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<10	<1.0	<1.0	<3.0
GW-20D	6/25/2007	23	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<10	<1.0	<1.0	<3.0
GW-20D	9																								

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Sample Location	Date Sampled	Parameters																							
		Vinyl Chloride	Trichloro-ethene	cis-1,2-Dichloro-ethene	Benzene	Chloro-benzene	1,1,1-Trichloro-ethane	1,1,2-Trichloro-ethane	1,1-Dichloro-ethane	1,2-Dichloro-ethane	2-Butanone (MEK)	2-Hexanone	Acetone	Bromo-dichloro-propane	Carbon Disulfide	Carbon Tetrachloride	Chloro-ethane	Chloroform	Ethyl-benzene	Ethylene	Methylene Chloride	Tetra-chloro-ethene	Tetrahydro-furan	Toluene	trans-1,2-Dichloro-ethene
GW-401	4/23/2008	20	<1.0	7.5	1.7	3.8	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	2.1	2.6	<5.0	<1.0	<10	8.1	<1.0	4.6
GW-401	5/1/2008	19	<1.0	4.4	1.3	3.9	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	1.6	2.5	<5.0	<1.0	<10	6.4	<1.0	<3.0
GW-401	5/28/2008	20	<1.0	4.4	1.3	6.2	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	2.6	6.8	<5.0	<1.0	<10	6	<1.0	6.2
GW-401	6/24/2008	24	<1.0	2.1	1.1	3.9	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	1.7	8.6	<5.0	<1.0	<10	4.7	<1.0	<3.0
GW-401	8/7/2008	24	<1.0	1.7	<1.0	3.7	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	1.6	-	<5.0	<1.0	<10	4.3	<1.0	<3.0
GW-401	9/24/2008	23	<1.0	1.8	<1.0	3.8	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	1.1	-	<5.0	<1.0	<10	1.4	<1.0	<3.0
GW-405	4/23/2008	5.8	<5.0	<5.0	7.2	600	<5.0	<5.0	<5.0	<5.0	<50	<120	<250	<120	<5.0	<25	<5.0	700	18	<25	<5.0	<50	18	<5.0	1,800
GW-405	5/1/2008	<10	<10	<10	<10	1,100	<10	<10	<10	<10	<10	<250	<500	<10	<50	<10	<10	21	<50	<10	<100	14	<10	3,100	
GW-405	5/28/2008	<10	<10	<10	<10	1,100	<10	<10	<10	<10	<10	<250	<500	<10	<50	<10	<10	1,100	29	<50	<10	<100	14	<10	3,000
GW-405	6/24/2008	<10	<10	<10	<10	1,100	<10	<10	<10	<10	<10	<250	<500	<10	<50	<10	<10	1,100	15	<50	<10	<100	10	<10	2,700
GW-405	8/7/2008	<10	<10	<10	<10	970	<10	<10	<10	<10	<10	<250	<500	<10	<50	<10	<10	1,000	-	<50	<10	<100	10	<10	2,700
GW-405	9/24/2008	<5.0	<5.0	<5.0	6.4	430	<5.0	<5.0	<5.0	<5.0	<50	<120	<250	<120	<5.0	<25	<5.0	260	-	<25	<5.0	<50	5.0	<5.0	640
IW-11	1/24/2008	8.6	38	18	<1.0	22	1.6	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	19	<1.0	<5.0	<1.0	<10	190	3.4	180
IW-11	4/1/2008	6.5	27	9.2	<1.0	6.7	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	5.8	-	<5.0	<1.0	<10	25	3.7	21
IW-11	4/2/2008	6	23	9.1	<1.0	8.2	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	8.8	-	<5.0	<1.0	<10	32	2.8	26
IW-11	5/5/2008	63	19	60	<2.0	76	<2.0	<2.0	<2.1	<2.0	<50	<100	<50	<2.0	<10	<2.0	<2.0	69	12	<10	<2.0	<20	290	3.4	210
IW-11	5/28/2008	44	8.7	28	<5.0	100	<2.0	<2.0	<2.0	<2.0	<50	<100	<50	<2.0	<10	<2.0	<2.0	92	28	<10	<2.0	<20	370	<2.0	280
IW-11	6/25/2008	18	5.9	44	<1.0	36	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	38	13	<5.0	<1.0	<10	160	3.1	120
IW-11	8/12/2008	6.6	8.4	18	<1.0	4.9	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	8.2	-	<5.0	<1.0	<10	22	3.1	18
IW-11	10/7/2008	7.6	3.9	22	<1.0	6.2	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	5	-	<5.0	<1.0	<10	21	2.8	19
IW-1S	1/24/2008	1,600	<100	950	<100	1,200	<100	<100	<100	<100	<2500	<5000	<2500	<100	<500	<100	<100	1,400	150	<500	<100	<1,000	6,600	<100	6,700
IW-1S	4/2/2008	800	540	3,500	<20	800	23	<20	<20	<38	<20	<500	<1,000	<20	<100	<20	<20	760	-	<100	<20	<200	3,100	44	1,900
IW-1S	4/3/2008	440	330	1,900	<20	20	<20	<20	<20	<20	<500	<1,000	<20	<100	<20	<20	700	-	<100	<20	<200	1,900	20	1,800	
IW-1S	4/30/2008	630	<25	190	<25	820	<25	<25	<25	<25	<25	<500	<1,000	<20	<100	<20	<20	810	180	<120	<25	<250	2,800		
IW-1S	5/28/2008	280	<25	<25	<25	710	<25	<25	<25	<25	<25	<500	<1,000	<20	<100	<20	<20	770	16	<120	<25	<250	3,300	<25	2,400
IW-1S	6/25/2008	330	<25	78	<25	810	<25	<25	<25	<25	<25	<500	<1,000	<20	<100	<20	<20	840	320	<120	<25	<250	4,800	<25	2,800
IW-1S	8/13/2008	430	390	1,400	<20	680	<20	<20	<23	<20	<500	<1,000	<20	<100	<20	<20	580	-	<100	<20	<200	1,900	28	1,400	
MW-2D	11/30/1993	ND																							

**Table 3**  
**Summary of Historical VOC Analytical Results**  
**Rose Township Demode Road Site**  
**Holly, Michigan**

Sample Location	Date Sampled	Parameters																								
		Vinyl Chloride	Trichloro-ethene	cis-1,2-Dichloro-ethene	Benzene	Chloro-benzene	Trichloro-ethane	1,1,1-Trichloro-ethane	Dichloro-ethene	Dichloro-ethene	1,2-Dichloro-ethene	Dichloro-propane	2-Butanone (MEK)	2-Hexanone	Acetone	Bromo-dichloro-methane	Carbon Disulfide	Tetrachloroethylene	Chloroform	Ethyl-benzene	Ethylene	Methylene Chloride	Tetra-chloro-ethene	Tetrahydro-furan	Toluene	trans-1,2-Dichloro-ethene
MW-102D	12/12/2006	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<1.0	<1.0	<1.0	<1.0	<20	<5.0	<1.0	<10	<1.0	<1.0	<3.0
MW-102D	3/14/2007	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<5.0	<1.0	<10	<1.0	<1.0	<3.0
MW-102D	6/19/2007	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<1.0	<1.0	<1.0	<1.0	<20	<5.0	<1.0	<10	<1.0	<1.0	<3.0
MW-102D	9/28/2007	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<1.0	<1.0	<1.0	<1.0	<20	<5.0	<1.0	<10	<1.0	<1.0	<3.0
MW-102D	12/13/2007	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<1.0	<1.0	<1.0	<1.0	<20	<5.0	<1.0	<10	<1.0	<1.0	<3.0
MW-102D	3/12/2008	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<1.0	<1.0	<1.0	<1.0	<20	<5.0	<1.0	<10	<1.0	<1.0	<3.0
MW-102D (Dup)	3/12/2008	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<1.0	<1.0	<1.0	<1.0	<20	<5.0	<1.0	<10	<1.0	<1.0	<3.0
MW-102D	6/19/2008	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<1.0	<1.0	<1.0	<1.0	<20	<5.0	<1.0	<10	<1.0	<1.0	<3.0
MW-102D	9/17/2008	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<1.0	<1.0	<1.0	<1.0	<20	<5.0	<1.0	<10	<1.0	<1.0	<3.0
MW-102D	10/28/2008	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<1.0	<1.0	<1.0	<1.0	<20	<5.0	<1.0	<10	<1.0	<1.0	<3.0
MW-102I	9/23/1988	270	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MW-102I	6/12/1991	17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MW-102I	6/30/1992	30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MW-102I	12/23/1993	5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MW-102I	4/18/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MW-103S	9/24/1988	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MW-103S	6/12/1991	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MW-103S	6/30/1992	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MW-103S	8/11/1992	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MW-103S	12/8/1993	2.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.1	
MW-103S	12/10/2003	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MW-103S	3/10/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MW-103S	6/23/2004	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MW-103S	12/7/2004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MW-103S	4/20/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MW-103S	6/23/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MW-103S	9/22/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MW-103S	12/8/2005	<1.0	<1.0	3.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<3.0	
MW-103S	4/25/2006	<1.0	<1.0	2.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<3.0	
MW-103S	6/16/2006	<1.0	<1.0	2.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<3.0	
MW-103S	9/16/2006	<1.0	<1.0	3.9	<1.0	<1.0	<1.0	<1.0																		

**Table 3**  
**Summary of Historical VOC Analytical Results**  
**Rose Township Demode Road Site**  
**Holly, Michigan**

Sample Location	Date Sampled	Parameters																									
		Vinyl Chloride	Trichloro-ethene	cis-1,2-Dichloro-ethene	Benzene	Chloro-benzene	Trichloro-ethane	1,1,1-Trichloro-ethane	1,1-Dichloro-ethane	1,1-Dichloro-ethene	1,2-Dichloro-propane	2-Butanone (MEK)	2-Hexanone	Acetone	Bromo-dichloro-methane	Carbon Disulfide	Carbon Tetrachloride	Chloro-ethane	Chloroform	Ethylen-benzene	Ethylene	Methylene-Chloride	Tetra-chloro-ethene	Tetrahydro-furan	Toluene	trans-1,2-Dichloro-ethene	Xylenes (Total)
MW-11II	10/21/1996	ND	ND	-	ND	ND	ND	ND	ND	ND	-	16	ND	15	-	-	ND	-	ND	ND	ND	ND	ND	ND	ND	ND	
PW-1	6/30/1992	59	ND	-	ND	ND	-	-	-	-	-	-	-	-	-	-	ND	-	ND	-	-	ND	-	-	ND	ND	
PW-1	3/8/1994	59	ND	-	ND	ND	ND	-	-	-	-	-	-	-	-	-	ND	-	ND	-	-	ND	-	-	ND	ND	
PW-1	7/1/2004	86	ND	13	ND	ND	ND	ND	1.4	ND	ND	ND	ND	ND	-	ND	ND	4.3	ND	ND	-	ND	ND	ND	ND	ND	
PW-1	6/23/2005	31	ND	12	ND	ND	ND	ND	1.3	ND	ND	ND	ND	ND	-	ND	ND	2.0	ND	ND	-	ND	ND	ND	ND	ND	
PW-1	6/12/2006	20	<1.0	19	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<25	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
PW-1	12/11/2006	16	<1.0	18	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<25	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
PW-1	3/13/2007	22	<1.0	27	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<25	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.1	<3.0	
PW-1	7/11/2007	8.4	<1.0	20	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<25	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
PW-1	9/25/2007	18	<1.0	28	<1.0	<1.0	<1.0	<1.0	1.5	<1.0	<1.0	<25	<25	<25	<1.0	<5.0	<1.0	1.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.3	<3.0
PW-1	10/25/2007	17	<1.0	34	<1.0	<1.0	<1.0	<1.0	1.7	<1.0	<1.0	<25	<25	<25	<1.0	<5.0	<1.0	1.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.7	<3.0
PW-1	11/19/2007	9.3	<1.0	26	<1.0	<1.0	<1.0	<1.0	1.3	<1.0	<1.0	<25	<25	<25	<1.0	<5.0	<1.0	1.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.7	<3.0
PW-1	12/11/2007	10	<1.0	31	<1.0	<1.0	<1.0	<1.0	1.4	<1.0	<1.0	<25	<25	<25	<1.0	<5.0	<1.0	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.8	<3.0
PW-1	1/19/2008	14	<1.0	32	<1.0	<1.0	<1.0	<1.0	1.8	<1.0	<1.0	<25	<25	<25	<1.0	<5.0	<1.0	1.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.9	<3.0
PW-1	2/22/2008	16	<1.0	34	<1.0	<1.0	<1.0	<1.0	1.8	<1.0	<1.0	<25	<25	<25	<1.0	<5.0	<1.0	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<4.1	<3.0	
PW-1	3/11/2008	8.3	<1.0	26	<1.0	<1.0	<1.0	<1.0	1.3	<1.0	<1.0	<25	<25	<25	<1.0	<5.0	<1.0	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<4.4	<3.0	
PW-1	4/22/2008	10	<1.0	30	<1.0	<1.0	<1.0	<1.0	1.4	<1.0	<1.0	<25	<25	<25	<1.0	<5.0	<1.0	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.8	<3.0	
PW-1	6/18/2008	13	<1.0	32	<1.0	<1.0	<1.0	<1.0	1.7	<1.0	<1.0	<25	<25	<25	<1.0	<5.0	<1.0	1.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<4.4	<3.0	
PW-1	7/14/2008	10	<1.0	31	<1.0	<1.0	<1.0	<1.0	1.6	<1.0	<1.0	<25	<25	<25	<1.0	<5.0	<1.0	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<4.3	<3.0	
PW-1	8/8/2008	11	<1.0	33	<1.0	<1.0	<1.0	<1.0	1.7	<1.0	<1.0	<25	<25	<25	<1.0	<5.0	<1.0	1.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<4.5	<3.0	
PW-1	9/15/2008	11	<1.0	33	<1.0	<1.0	<1.0	<1.0	1.8	<1.0	<1.0	<25	<25	<25	<1.0	<5.0	<1.0	1.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<4.9	<3.0	
PW-1	10/20/2008	8.3	<1.0	27	<1.0	<1.0	<1.0	<1.0	1.6	<1.0	<1.0	<25	<25	<25	<1.0	<5.0	<1.0	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<4.4	<3.0	
PW-2	1/5/1994	ND	ND	-	ND	ND	ND	-	-	-	-	-	-	-	-	-	ND	-	ND	-	-	7.0	-	ND	-		
PW-3	1/4/1994	160	ND	-	220	1,400	3.1	-	-	-	-	-	-	-	-	-	-	1,400	-	13	-	-	23,000	-	3,600		
PW-3	4/6/1995	60	ND	-	86	420	ND	-	-	-	-	-	-	-	-	-	670	-	ND	-	-	2,000	-	1,600			
PW-3	7/1/2004	6.9	1.3	1.8	9.7	130	ND	ND	3.8	ND	ND	ND	ND	ND	-	ND	ND	3.9	ND	84	-	ND	ND	83	ND	160	
PW-3	6/23/2005	6.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
PW-3	6/12/2006	1.7	1.7	<1.0	3.8	64	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	24	<1.0	<1.0	<1.0	28	<1.0	28	
PW-3	6/16/2008	<1.0	<1.0	&lt																							

**Table 3**  
**Summary of Historical VOC Analytical Results**  
**Rose Township-Demode Road Site**  
**Holly, Michigan**

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**Summary of Historical VOC Analytical Results**  
**Rose Township Demode Road Site**  
**Holly, Michigan**

Sample Location	Date Sampled	Parameters																								
		Vinyl Chloride	Trichloro-ethene	Cis-1,2-Dichloro-ethene	Benzene	Chloro-benzene	1,1,1-Trichloro-ethane	1,1,2-Trichloro-ethane	1,1-Dichloro-ethane	1,2-Dichloro-ethane	2-Butanone (MEK)	2-Hexanone	Acetone	Bromo-dichloro-methane	Carbon Disulfide	Carbon Tetrachloride	Chloro-ethane	Chloroform	Ethyl-benzene	Ethylene	Methylene Chloride	Tetra-chloro-ethene	Tetrahydro-furan	Toluene	trans-1,2-Dichloro-ethene	Xylenes (Total)
RW-3	9/30/1986	ND	ND	-	ND	ND	ND	ND	ND	ND	16	ND	6.0	-	-	ND	ND	-	ND	ND	ND	ND	1.0	ND	ND	
RW-3	6/12/1991	ND	ND	-	ND	ND	-	-	-	-	-	-	-	-	-	ND	-	ND	ND	ND	-	-	ND	-	ND	
RW-4	9/30/1986	ND	36	-	ND	ND	18	ND	8.0	ND	ND	-	15	ND	4.0	-	ND	-	ND	ND	ND	ND	1.0	18	ND	
RW-4	11/23/1993	ND	7.2	-	ND	ND	2.3	-	-	-	-	-	-	-	-	-	-	ND	-	ND	-	-	ND	-	ND	
RW-5D	10/1/1986	86	ND	-	2.0	ND	ND	ND	7	ND	ND	-	19	ND	4.0	-	ND	3.0	-	ND	1.0	ND	ND	1.0	2.0	ND
RW-5D (Dup)	10/1/1986	1,400	71	-	170	190	48	ND	490	8.0	ND	-	65	ND	61	-	8.0	6.0	-	ND	6.0	ND	ND	62	710	72
RW-5D	12/29/1993	170	ND	-	140	150	ND	-	-	-	-	-	-	-	-	-	-	-	63	-	ND	-	-	550	-	130
RW-5D	1/11/1994	33	ND	-	20	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	3.0	-	ND	
RW-5D	8/18/1994	150	3.4	-	160	100	2.5	-	-	-	-	-	-	-	-	-	-	33	-	1.0	-	-	110	-	67	
RW-5D (Dup)	8/18/1994	18	ND	-	16	ND	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	1.7	-	ND	-	ND	
RW-5S	12/10/2003	24	22	11	6.3	55	3.8	ND	8.2	1.6	ND	ND	ND	ND	ND	-	ND	ND	ND	ND	ND	ND	ND	1.9	ND	6.7
RW-5S (Dup)	12/10/2003	26	24	12	6.8	97	4.3	ND	9.1	1.6	ND	ND	ND	ND	ND	-	ND	ND	ND	ND	ND	ND	ND	1.6	ND	6.7
RW-5S	3/10/2004	34	28	13	8.1	79	4.8	ND	11	2.3	ND	ND	ND	ND	ND	-	ND	ND	2.6	ND	4.2	6.0	ND	ND	ND	ND
RW-5S	6/24/2004	10	12	4.8	1.1	76	3.8	ND	3.1	1.2	ND	ND	ND	ND	ND	-	ND	ND	11	ND	ND	ND	ND	ND	ND	ND
RW-5S	12/7/2004	3.5	3.3	1.8	ND	48	1.2	ND	1.5	ND	ND	ND	ND	ND	ND	-	ND	ND	7.4	ND	ND	ND	ND	ND	ND	ND
RW-5S	4/20/2005	ND	1.2	ND	ND	53	ND	ND	1.3	ND	ND	ND	ND	ND	ND	-	ND	ND	6.9	ND	ND	ND	ND	ND	ND	ND
RW-5S	6/23/2005	2.3	ND	ND	ND	19	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	ND	ND	2.9	ND	ND	ND	ND	ND	ND	ND
RW-5S	9/21/2005	5.0	1.4	ND	ND	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	ND	ND	2.8	ND	ND	ND	ND	ND	ND	ND
RW-5S	12/7/2005	2.4	1.0	<1.0	<1.0	22	<1.0	<1.0	<1.0	<1.0	<1.0	<26	<60	<25	<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
RW-5S (Dup)	12/7/2005	2.4	1.1	<1.0	<1.0	22	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	2.7	<1.0	<5.0	<1.0	<1.0	<1.0	<3.0	
RW-5S	4/25/2006	1.7	<1.0	<1.0	<1.0	29	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	8.0	-	<5.0	<1.0	<1.0	<1.0	<3.0	
RW-5S	8/14/2006	1.4	<1.0	<1.0	27	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	6.8	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	
RW-5S	9/18/2006	1.1	<1.0	<1.0	28	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	6.0	<1.0	<5.0	<1.0	<1.0	<1.0	<3.0	
RW-5S	12/11/2006	1.2	<1.0	<1.0	28	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	1.8	<1.0	<5.0	<1.0	<1.0	<1.0	<3.0	
RW-5S	3/14/2007	<1.0	<1.0	<1.0	28	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	1.2	<1.0	<5.0	<1.0	<1.0	<1.0	<3.0	
RW-5S	6/27/2007	<1.0	<1.0	<1.0	28	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<3.0	
RW-5S	9/28/2007	<1.0	<1.0	<1.0	28	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<3.0	
RW-5S	12/13/2007	<1.0	1.5	1.1	ND	5.1	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<3.0	
RW-5S	3/13/2008	<1.0	1.0	1.0	ND	6.6	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	1.6	<1.0	<5.0	<1.0	<1.0	<1.0	<3.0	
RW-5S	6/17/2008	<1.0	1.0	1.0	ND	4.8	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<3.0	
RW-5S	9/17/2008	<1.0	1.0	1.0	ND	4.2	<1.0	<1.0	<1.0	<1.0	<1.0	<25	<50	<25	<1.0	<5.0	<1.0	<1.0	1.0	<1.0	<5.0	<1.0	<1.0	<1.0	<3.0	
RW-5S	10/21/2008	<1.0																								

**Table 4**  
**Summary of Biogeochemical and Field Parameters in Groundwater Samples**  
**Rose Township Demode Road Site**  
**Holly, Michigan**  
**Samples Collected October 20 through October 29, 2008**

Biogeochemical and Field Parameters	Units	Sample Locations														
		DNR-1	DNR-3	DNR-4D	DNR-5	DNR-6 Duplicate	DNR-7	GW-1I	GW-3I	GW-4D	GW-5D	GW-5I	GW-6D	GW-6I	GW-12I	GW-16
<b>Field Parameters</b>																
pH	S.U.	7.86	7.43	7.85	7.22	NA	7.14	7.14	8.21	7.17	7.87	8.25	8.43	7.67	7.95	7.64
Conductivity	µS/cm	502	539	786	508	NA	581	616	620	574	801	615	541	718	431	487
Dissolved Oxygen	mg/L	1.02	1.15	0.58	1.37	NA	1.28	1.12	0.19	0.77	0.71	1.36	0.18	2.82	1.04	0.89
Temperature	C°	9.78	9.79	10.13	10.88	NA	11.36	10.10	9.78	9.79	6.78	10.09	9.78	9.71	10.32	9.36
Oxidation/Reduction Potential	mv	-106.9	-72	-106	-95.2	NA	-81.4	-106.4	-91.1	-111.1	-102	-98.2	-101.8	-89	650.2	-76
Salinity	PSS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Turbidity	NTU	8.12	1.9	20	36	NA	51	29	4	1	78	NA	2	16	20	2
Sulfide	mg/L	0.00	0.00	0.73	NA	NA	0.40	0.72	0.00	0.00	0.39	0.02	0.00	0.00	0.08	0.00
Dissolved Iron	mg/L	2.22	1.6	0.41	1.34	NA	1.88	2.88	1.80	2.14	0.46	1.82	1.41	1.06	0.29	0.46
Dissolved Manganese	mg/L	0.7	0.2	0.3	NA	NA	0.2	1.1	0.0	0.0	0.6	0.2	0.0	0.4	1.1	0.5
<b>Biogeochemical Parameters</b>																
Nitrogen, Ammonia	mg/L	0.21	0.091	0.14	<0.050	<0.050	<0.050	0.17	0.061	0.14	0.18	0.076	<0.050	0.068	0.06	0.1
Total Organic Carbon	mg/L	2.1	1.5	1.1	1.6	1.5	1.9	1.3	1.9	1.0	2.3	1.8	1.7	<1.0	1.4	1.6
Nitrogen, Nitrate	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Nitrogen, Nitrite	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Sulfate	mg/L	<5.0	<5.0	18	13	13	14	31	19	16	<5.0	18	19	19	5.7	<5.0
Chloride	mg/L	1.7	2.1	2.2	2.8	2.6	9.0	8.6	6.8	3.3	4.9	6.2	2.9	4.1	5.1	3.1
Total Alkalinity	mg/L	260	290	290	260	260	280	290	280	300	280	300	260	250	260	250
<b>Dissolved Gases</b>																
Ethane Gas in Water	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethene Gas in Water	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	10	<1.0	1.5	<1.0	1.1	1.4	<1.0	<1.0	<1.0	<1.0
Methane Gas in Water	µg/L	54	31	3.1	42	31	41	7.2	42	7.4	47	9.4	4.3	3.8	630	29

**Notes:**  
ND (5.0) -Not detected above analytical method reporting limits are listed in parenthesis.  
S.U. -Standard Units  
NTU -Nephelometric Turbidity Units  
µS/cm -MicroSiemens per Centimeter  
mg/L -Milligram per Liter  
µg/L -Microgram per Liter  
C° -Degrees Celsius  
mv -Millivolt  
PSS -Practical Salinity Scale  
NA -Not available.  
NS -Sample location not sampled.

**Table 4**  
**Summary of Biogeochemical and Field Parameters In Groundwater Samples**  
**Rose Township Demode Road Site**  
**Holly, Michigan**  
**Samples Collected October 20 through October 29, 2008**

Biogeochemical and Field Parameters	Units	Sample Locations															
		GW-17D	Duplicate	GW-17I	GW-18	GW-19D	GW-19S	GW-20D	GW-20I	Duplicate	GW-21D	GW-21S	GW-22D	GW-22I	GW-22S	GW-23D	GW-23I
<b>Field Parameters</b>																	
pH	S.U.	8.86	NA	8.58	8.99	7.33	7.78	7.38	7.32	NA	7.51	7.34	7.11	NA	NA	6.94	6.95
Conductivity	µS/cm	614	NA	608	602	853	588	888	912	NA	778	903	570	555	548	580	588
Dissolved Oxygen	mg/L	0.44	NA	0.49	0.24	0.98	0.20	0.78	0.72	NA	0.77	0.55	0.70	0.98	0.93	1.29	0.74
Temperature	C°	9.86	NA	9.81	9.75	9.83	9.71	9.87	9.52	NA	9.98	10.13	10.70	10.15	10.90	11.23	11.67
Oxidation/Reduction Potential	mv	-133.6	NA	-132.6	-129	-67	-129.7	-68.2	-65	NA	-72.7	-54.8	-184.3	-124	-167	-228	-223
Salinity	PSS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Turbidity	NTU	2	NA	1	5	0	0	0	0	NA	1	2	1	8	2	1	1
Sulfide	mg/L	0.00	NA	NA	0.00	0.00	0.02	0.1	0.00	NA	0.00	0.00	0.00	0.01	0.00	1.46	0.13
Dissolved Iron	mg/L	2.16	NA	1.6	1.41	1.74	1.6	1.83	1.64	NA	1.1	1.51	0.37	1.9	1.58	0.1	0.39
Dissolved Manganese	mg/L	0.0	NA	0.2	0.3	0.0	0.2	0.6	0.4	NA	0.1	0.1	0.50	0.8	0.7	1.0	1.4
<b>Biogeochemical Parameters</b>																	
Nitrogen, Ammonia	mg/L	0.075	0.075	0.076	0.09	0.09	<0.050	0.088	0.1	0.098	0.19	0.12	0.09	0.09	0.096	0.11	<0.050
Total Organic Carbon	mg/L	1.4	1.3	1.7	1.4	1.3	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	1.5	1.9	1.5	1.2	1.5
Nitrogen, Nitrate	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Nitrogen, Nitrite	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Sulfate	mg/L	18	18	16	15	22	24	16	20	20	<5.0	18	14	19	16	<5.0	25
Chloride	mg/L	6.7	6.7	5.8	5.6	4.1	3.6	6.5	7.9	8.0	2.4	7.8	3.5	3.0	2.6	4.4	6.1
Total Alkalinity	mg/L	320	390	300	290	280	300	300	310	300	290	320	300	290	270	320	280
<b>Dissolved Gases</b>																	
Ethane Gas in Water	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethene Gas in Water	µg/L	1.4	1.4	1.1	2.0	<1.0	1.3	2.0	<1.0	<1.0	<1.0	<1.0	3.2	1.1	<1.0	3.7	1.5
Methane Gas in Water	µg/L	6.5	6.2	9.5	17	3.8	4.1	13	3.9	3.3	19	4.5	6.0	2.0	12	19	2.5

**Notes:**

- ND (5.0) -Not detected above analytical method reporting limits are listed in parenthesis.
- S.U. -Standard Units
- NTU -Nephelometric Turbidity Units
- µS/cm -MicroSiemens per Centimeter
- mg/L -Milligram per Liter
- µg/L -Microgram per Liter
- C° -Degrees Celsius
- mv -Millivolt
- PSS -Practical Satinity Scale
- NA -Not available.
- NS -Sample location not sampled.

**Table 4**  
**Summary of Biogeochemical and Field Parameters in Groundwater Samples**  
**Rose Township Demode Road Site**  
**Holly, Michigan**  
**Samples Collected October 20 through October 29, 2008**

Biogeochemical and Field Parameters	Units	Sample Locations															
		GW-23S	GW-24D	GW-24I	GW-25D	GW-26I	GW-26D	GW-26I	GW-28D	GW-28I	GW-29	MW-2I	MW-3I	MW-102D	MW-103S	MW-107I	MW-108D
<b>Field Parameters</b>																	
pH	S.U.	7.54	7.40	7.49	7.48	7.37	7.54	7.31	7.95	7.32	8.12	6.85	7.08	8.22	7.12	8.37	7.06
Conductivity	µS/cm	559	848	818	870	804	815	827	386	697	577	626	587	84	609	578	560
Dissolved Oxygen	mg/L	0.44	0.68	0.64	0.57	0.74	0.69	0.97	0.73	0.72	1.84	2.62	2.74	0.80	1.19	0.45	0.74
Temperature	C°	10.68	9.85	9.84	10.09	9.96	10.17	10.04	9.66	9.73	9.71	9.87	9.45	9.81	12.21	9.40	9.71
Oxidation/Reduction Potential	mv	-185	-130	-144	-218	-87	-114	-65	-249.3	-146.9	-124.8	-90.5	-85.1	-85	-92.9	-139.5	129.6
Salinity	PSS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Turbidity	NTU	1	1	1	1	1	1	1	2	4	79	49	1	15	5	180	
Sulfide	mg/L	0.00	0.04	0.00	0.00	0.06	0.02	0.00	NA	NA	0.08	7.04	0.63	0.00	0.04	0.00	7.20
Dissolved Iron	mg/L	2.07	1.1	2.09	0.86	1.6	3.02	1.86	NA	NA	4.82	3.27	1.85	0.0	1.84	1.98	1.41
Dissolved Manganese	mg/L	0.7	1.0	0.4	1.0	0.8	1.2	0.8	NA	NA	0.0	0.0	0.5	0.1	0.6	0.0	0.7
<b>Biogeochemical Parameters</b>																	
Nitrogen, Ammonia	mg/L	0.1	0.12	0.11	0.079	0.16	0.16	0.13	0.22	0.15	0.18	0.18	0.11	0.064	0.14	0.07	0.17
Total Organic Carbon	mg/L	1.9	<1.0	1.2	<1.0	1.5	1.1	1.0	2.5	63	14.0	1.1	1.2	<1.0	1.7	1.8	1.9
Nitrogen, Nitrate	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Nitrogen, Nitrite	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Sulfate	mg/L	24	18	6.5	15	9.1	<5.0	12	<5.0	<5.0	<5.0	20	14	<5.0	15	11	21
Chloride	mg/L	4.2	3.7	2.1	4.9	2.1	2.3	1.8	7.9	3.5	4.2	7.3	3.3	3.4	5.6	2.6	8.6
Total Alkalinity	mg/L	280	280	270	290	280	280	300	190	360	310	300	220	310	290	300	
<b>Dissolved Gases</b>																	
Ethane Gas in Water	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethene Gas in Water	µg/L	<1.0	2.2	4.4	4.4	1.8	2.6	<1.0	6.8	33	100	1.1	1.8	<1.0	<1.0	<1.0	<1.0
Methane Gas in Water	µg/L	3.1	3.2	11	7.2	6.6	330	6.4	36	2,800	1,900	4.8	11	230	8.0	4.1	22

**Notes:**

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**Table 4**  
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**Rose Township Demode Road Site**  
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**Samples Collected October 20 through October 29, 2008**

Biogeochemical and Field Parameters	Units	Sample Locations										
		MW-109D	PW-1	PW-3	PW-4	PW-6	PW-8	PW-9	RW-1	RW-1D	RW-2	RW-5S
<b>Field Parameters</b>												
pH	S.U.	7.34	7.17	7.18	7.18	7.26	7.05	7.37	7.44	7.79	7.15	7.25
Conductivity	µS/cm	594	560	599	581	583	669	583	517	507	610	631
Dissolved Oxygen	mg/L	1.05	2.68	0.89	2.25	1.40	2.83	4.01	8.90	0.80	1.82	2.60
Temperature	C°	9.40	10.22	10.24	10.66	10.49	11.93	10.55	10.17	10.42	11.40	11.94
Oxidation/Reduction Potential	mv	-81.1	-74.7	-105.3	-88.8	-78.7	-36.5	-72.8	-24.8	-84.7	-8.9	8.4
Salinity	PSS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Turbidity	NTU	50	2	1	6	5	19	2	1	1	69	6
Sulfide	mg/L	0.77	0.00	0.01	0.00	0.00	0.11	0.00	0.00	0.00	0.70	0.04
Dissolved Iron	mg/L	0.98	1.7	8.28	1.78	1.84	0.51	0.25	0.08	0.19	0.22	5.04
Dissolved Manganese	mg/L	0.7	0.0	1.6	1.2	0.2	0.4	0.3	0.0	0.1	0.4	0.3
<b>Biogeochemical Parameters</b>												
Nitrogen, Ammonia	mg/L	0.55	<0.050	0.18	0.061	0.074	<0.050	<0.050	<0.050	0.12	<0.050	<0.050
Total Organic Carbon	mg/L	1.6	1.5	1.8	1.6	1.4	1.4	1.2	2.1	1.8	<1.0	1.2
Nitrogen, Nitrate	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.24	0.32	0.14	<0.050	0.17	<0.050
Nitrogen, Nitrite	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.060
Sulfate	mg/L	11	13	20	25	15	21	21	10	<5.0	21	25
Chloride	mg/L	11	3.6	4.1	4.8	3.9	11	6.9	4.8	5.0	10	5.1
Total Alkalinity	mg/L	300	280	290	270	290	340	280	260	290	300	310
<b>Dissolved Gases</b>												
Ethane Gas in Water	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethene Gas in Water	µg/L	<1.0	2.4	1.6	1.1	1.0	<1.0	<1.0	<1.0	2.1	<1.0	<1.0
Methane Gas in Water	µg/L	120	12	18	2.3	11	1.5	<0.50	26	90	6.6	1.2

**Notes:**

- ND (5.0) -Not detected above analytical method reporting limits are listed in parenthesis.
- S.U. -Standard Units
- NTU -Nephelometric Turbidity Units
- µS/cm -MicroSiemens per Centimeter
- mg/L -Milligram per Liter
- µg/L -Microgram per Liter
- C° -Degrees Celsius
- mv -Millivolt
- PSS -Practical Salinity Scale
- NA -Not available.
- NS -Sample location not sampled.

**Table 5**  
**Summary of Analytical Data - Influent and Effluent Concentrations**  
**Rose Township, Demode Road Site**  
**Groundwater Extraction and Treatment System**  
*Units as Given*

Sampling Month: Sample Date:	Discharge Limitations  See footnote after table 1	August Data		August Data		August Data		August Data		August Monthly Average Effluent
		08/04/08	08/04/08	08/11/08	08/11/08	08/18/08	08/18/08	08/25/08	08/25/08	
Site Identification:	Compound Name	Units	Influent	Effluent	Influent	Effluent	Influent	Effluent	Influent	Effluent
Chlorobenzene	ug/L	5(m)	-	-	-	-	-	-	-	-
Methylene chloride	ug/L	5(m)	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	ug/L	5(m)	-	-	-	-	-	-	-	-
Trichloroethylene	ug/L	5(m)	-	-	-	-	-	-	-	-
Vinyl chloride	ug/L	3(m)	16	<1.0	11	<1.0	11	<1.0	12	<1.0
Benzene	ug/L	5(m)	-	-	-	-	-	-	-	-
Toluene	ug/L	5(m)	-	-	-	-	-	-	-	-
1,2-Dichloroethylene	ug/L	NA	28	5.1	25	5.4	27	5.2	29	6.0
PCB: aroclor 1016	ug/L	*	-	-	-	-	-	-	-	-
PCB: aroclor 1221	ug/L	*	-	-	-	-	-	-	-	-
PCB: aroclor 1232	ug/L	*	-	-	-	-	-	-	-	-
PCB: aroclor 1242	ug/L	*	-	-	-	-	-	-	-	-
PCB: aroclor 1248	ug/L	*	-	-	-	-	-	-	-	-
PCB: aroclor 1254	ug/L	*	-	-	-	-	-	-	-	-
PCB: aroclor 1260	ug/L	*	-	-	-	-	-	-	-	-
Arsenic, total	ug/L	50(a)	-	5.9	-	6.7	-	6.2	-	7.4
Bis(2-ethyl hexyl)phthalate	ug/L	5(m)	-	<5.0	-	<0.50	-	<5.0	-	<5.0
Isophorone	ug/L	5(m)	-	-	-	-	-	-	-	-
Lead, total	ug/L	14(a)	-	<1.0	-	<1.0	-	<1.0	-	<1.0
Naphthalene	ug/L	5(m)	-	-	-	-	-	-	-	-
Pentachlorophenol	ug/L	0.8(a)	-	-	-	<0.50	-	-	-	<0.50
Air Emission Rate	lbs/hr	1.0 †	0.0059		0.0057		0.0060		0.0065	
Cumulative Mass Removal	lbs		547.63		548.62		549.57		550.58	

**Table 5**  
**Summary of Analytical Data - Influent and Effluent Concentrations**  
**Rose Township, Demode Road Site**  
**Groundwater Extraction and Treatment System**  
*Units as Given*

Sampling Month: Sample Date:	Discharge Limitations	September Data		September Data		September Data		September Data		September Monthly Average Effluent
		09/02/08	09/02/08	09/08/08	09/08/08	09/15/08	09/15/08	09/22/08	09/22/08	
Site Identification:	See footnote after table 1	Influent	Effluent	Influent	Effluent	Influent	Effluent	Influent	Effluent	
Compound Name	Units									
Chlorobenzene	ug/L	5(m)	-	-	-	-	-	-	-	-
Methylene chloride	ug/L	5(m)	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	ug/L	5(m)	-	-	-	-	-	-	-	-
Trichloroethylene	ug/L	5(m)	-	-	-	-	-	-	-	-
Vinyl chloride	ug/L	3(m)	11	<1.0	11	<1.0	15	<1.0	14	<1.0
Benzene	ug/L	5(m)	-	-	-	-	-	-	-	-
Toluene	ug/L	5(m)	-	-	-	-	-	-	-	-
1,2-Dichloroethylene	ug/L	NA	28	6.5	27	7.1	31	7.3	30	7.4
PCB: aroclor 1016	ug/L	*	-	-	-	-	-	-	-	-
PCB: aroclor 1221	ug/L	*	-	-	-	-	-	-	-	-
PCB: aroclor 1232	ug/L	*	-	-	-	-	-	-	-	-
PCB: aroclor 1242	ug/L	*	-	-	-	-	-	-	-	-
PCB: aroclor 1248	ug/L	*	-	-	-	-	-	-	-	-
PCB: aroclor 1254	ug/L	*	-	-	-	-	-	-	-	-
PCB: aroclor 1260	ug/L	*	-	-	-	-	-	-	-	-
Arsenic, total	ug/L	50(a)	-	8.4	-	10	-	8.1	-	8.5
Bis(2-ethyl hexyl)phthalate	ug/L	5(m)	-	2.7	-	<5.0	-	<5.0	-	<5.0
Isophorone	ug/L	5(m)	-	-	-	-	-	-	-	-
Lead, total	ug/L	14(a)	-	<1.0	-	<1.0	-	<1.0	-	<1.0
Naphthalene	ug/L	5(m)	-	-	-	-	-	-	-	-
Pentachlorophenol	ug/L	0.8(a)	-	<0.50	-	-	-	-	-	<0.50
Air Emission Rate	lbs/hr	1.0 †		0.0061		0.0058		0.0072		0.0067
Cumulative Mass Removal	lbs			551.83		552.71		553.69		554.89

**Table 5**  
**Summary of Analytical Data - Influent and Effluent Concentrations**  
**Rose Township, Demode Road Site**  
**Groundwater Extraction and Treatment System**  
*Units as Given*

Sampling Month: Sample Date:	Discharge Limitations	October Data		October Data		October Data		October Monthly Average Effluent
		10/13/08	10/13/08	10/20/08	10/20/08	10/27/08	10/27/08	
Site Identification:	See footnote after table 1	Influent	Effluent	Influent	Effluent	Influent	Effluent	
Compound Name	Units							
Chlorobenzene	ug/L	5(m)	-	<1.0	-	-	-	-
Methylene chloride	ug/L	5(m)	-	<1.0	-	-	-	-
1,1,1-Trichloroethane	ug/L	5(m)	-	<1.0	-	-	-	-
Trichloroethylene	ug/L	5(m)	-	<1.0	-	-	-	-
Vinyl chloride	ug/L	3(m)	12	<1.0	9.1	<1.0	16	<1.0
Benzene	ug/L	5(m)	<1.0	<1.0	-	-	-	-
Toluene	ug/L	5(m)	<1.0	<1.0	-	-	-	-
1,2-Dichloroethylene	ug/L	NA	27	<1.0	14	<2.0	29	<2.0
PCB: aroclor 1016	ug/L	*	<1.0	<1.0	-	-	-	-
PCB: aroclor 1221	ug/L	*	<1.0	<1.0	-	-	-	-
PCB: aroclor 1232	ug/L	*	<1.0	<1.0	-	-	-	-
PCB: aroclor 1242	ug/L	*	<1.0	<1.0	-	-	-	-
PCB: aroclor 1248	ug/L	*	<1.0	<1.0	-	-	-	-
PCB: aroclor 1254	ug/L	*	<1.0	<1.0	-	-	-	-
PCB: aroclor 1260	ug/L	*	<1.0	<1.0	-	-	-	-
Arsenic, total	ug/L	50(a)	-	73	-	5.8	-	6.6
Bis(2-ethyl hexyl)phthalate	ug/L	5(m)	-	<5.0	-	<5.5	-	<5.0
Isophorone	ug/L	5(m)	-	<5.0	-	-	-	-
Lead, total	ug/L	14(a)	-	<1.0	-	<1.0	-	<1.0
Naphthalene	ug/L	5(m)	-	<5.0	-	-	-	-
Pentachlorophenol	ug/L	0.8(a)	-	<0.50	-	-	-	<0.50
Air Emission Rate	lbs/hr	1.0 †		0.0019		0.0043		0.0075
Cumulative Mass Removal	lbs			554.97		555.30		556.02

**Table 6**  
**Summary of Operating Data**  
**Groundwater Extraction and Treatment System**  
**Rose Township Site**

Well ID	Jul-08			Aug-08			Sep-08			Oct-08		
	Monthly Total (Gallons)	Average Flowrate (gpm)	% Operation									
PW-1	4,923,171	110	94	5,534,429	124	100	3,715,000	86	70	2,811,000	67	55
PW-3	1,689,342	38	94	1,839,807	41	100	1,202,250	28	70	1,291,000	31	55
PW-4	2,062,686	46	94	2,275,339	51	100	1,847,375	38	70	1,184,000	28	55
PW-6	3,797,250	85	77	5,241,000	117	100	3,486,000	81	70	2,633,000	63	65
PW-7	0	0	0	0	0	0	0	0	0	0	0	0
PW-8	0	0	0	0	0	0	0	0	0	0	0	0

**Appendix A**

CLIENT: Chrysler  
LOCATION: Rose Township  
PROJECT #: 106686.04

ENTER WELL LOCATION: GW62

<b>INSPECTION</b>									
Label on well?	<i>Needs to be replaced</i>	<input checked="" type="checkbox"/> YES	NO						
Is reference mark visible?	<i>Yes</i>	<input checked="" type="checkbox"/> YES	NO						
Condition of well:	<i>Good</i>								
Weather:	<i>Cloudy</i>								
Notes:	<i>Flowing artesian well.</i>								
<b>GW62-102808-AM</b>									
<b>STATIC WATER LEVEL JUST PRIOR TO PURGING</b>									
Date: <u>10/28/08</u>	Time: <u>AM/PM</u>								
Depth to Water:		Measured with:	ELECTRONIC TAPE						
Length of Well:		Decontamination:	CHALK & STEEL TAPE PRE STEAM CLEANED						
<b>WELL PURGING</b>									
Date: <u>10/28/08</u>	Begin Time: <u>1345</u> AM/PM	Purging Equipment: <u>Peristaltic</u>							
	End Time: _____ AM/PM	Decontamination: PRE STEAM CLEANED							
<b>CALCULATION OF 3 CASING VOLUMES</b>									
ft	Length of well	Yield:	HIGH    LOW						
ft	- depth to water (before purge start)	If low, recovery time:	_____						
ft	= length of water column								
Gallons	x conversion factor (2" well) 0.49	Actual volume purged:	gallons						
	= 3 casing volumes	Actual purge flow rate:	<u>200</u> ml/min						
Notes:	$S = 0 \text{ mg/L}$	$P_0 = 1.06 \text{ mg/L}$	$M_n = 0.4 \text{ mg/L}$						
Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start:			+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 5°	+/- 10 mV	
<u>1345</u>	-	-	<u>7.77</u>	<u>725</u>	<u>12</u>	<u>1.98</u>	<u>9.61</u>	<u>-105</u>	
<u>1400</u>	-	-	<u>7.25</u>	<u>722</u>	<u>9</u>	<u>1.68</u>	<u>9.65</u>	<u>-105</u>	
<u>1405</u>	-	-	<u>7.73</u>	<u>720</u>	<u>19</u>	<u>2.67</u>	<u>9.67</u>	<u>-104</u>	
<u>1410</u>	-	-	<u>7.71</u>	<u>721</u>	<u>12</u>	<u>2.79</u>	<u>9.79</u>	<u>-99</u>	
<u>1415</u>	-	-	<u>7.68</u>	<u>719</u>	<u>16</u>	<u>2.89</u>	<u>9.66</u>	<u>-91</u>	
<u>1420</u>			<u>7.67</u>	<u>718</u>		<u>2.82</u>	<u>9.71</u>	<u>-89</u>	
Final:									
<b>SAMPLE COLLECTION</b>				Method: <u>Peristaltic</u>					
Date: <u>10/28/08</u>	Time: <u>1425 AM/PM</u>								
Appearance of Sample:	<u>Clean</u>			Actual sample flow rate:			<u>150</u>	ml/min or	
SAMPLE BOTTLE(S) COLLECTED:	<u>VOC N-A</u>							L/min	
<b>SAMPLING PERSONNEL</b>									
Name: <u>ANTON Almond</u>				Company: <u>AEMG</u>					

CLIENT: Chrysler

LOCATION: Rose Township

PROJECT #: 106686.04

ENTER WELL LOCATION:

DNR 4 D

## INSPECTION

Label on well?

YES

NO

Is cap locked?

YES

NO

Is reference mark visible?

YES

NO

Standing water present?

YES

NO

Condition of well:

Good

Any indication of surface runoff in well?

YES

NO

Weather:

Cloudy

Air Temperature:

31° F

Notes:

Slow recharge

DNR 4 D-102808-AW

## STATIC WATER LEVEL JUST PRIOR TO PURGING

Date: 10/28/08 Time: 1440 AM/PM

Depth to Water:

1.5

Length of Well:

118'

Measured with:

ELECTRONIC TAPE

CHALK &amp; STEEL TAPE

Decontamination:

PRE STEAM CLEANED

DI WATER

OTHER

## WELL PURGING

Date: 10/28/08

Begin Time: 1445

AM/PM

Purging Equipment:

Peristaltic

End Time:

AM/PM

Decontamination:

PRE STEAM CLEANED

DI WATER

OTHER

## CALCULATION OF 3 CASING VOLUMES

ft Length of well

Yield: HIGH LOW

ft - depth to water (before purge start)

If low, recovery time:

ft = length of water column

Actual volume purged: 2.5 gallons

x conversion factor (2" well) 0.49

Gallons = 3 casing volumes

Actual purge flow rate: 50-100 ml/min

Notes:

$$S = 0.73 \text{ mg/L} \quad P_e = 0.41 \text{ mg/L} \quad M_u = 0.3 \text{ mg/L}$$

Pump set at minimum flow rate.

Time	Volume (gallons)	Depth to Water (feet)	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start:									
1510	0.0	5.1	7.84	772	22	1.03	10.37	-106	
1515	1.1	5.9	7.85	774	20	0.91	10.41	-109	
1520	1.2	7.4	7.86	782	20	0.89	10.29	-171	
1525	1.3	2.9	7.86	783	20	0.81	10.23	-112	
1530	1.4	9.65	7.86	784	20	0.90	10.17	-111	
1535	1.5	10.62	7.86	784	22	0.86	10.16	-111	
1540	1.8	11.71	7.86	785	21	0.69	10.12	-110	
1545	2.0	12.62	7.86	785	19	0.64	10.12	-109	
1550	2.2	13.87	7.85	786	20	0.61	10.14	-102.4	
Final: 1555	2.5	14.95	7.85	786	20	0.58	10.13	-106	

## SAMPLE COLLECTION

Date: 10/28/08

Time: 1600 AM/PM

Method: Peristaltic

Appearance of Sample:

Clear

Actual sample flow rate:

100

ml/min or L/min

SAMPLE BOTTLE(S) COLLECTED:

VOC NA

## SAMPLING PERSONNEL

Name: Avtar Mani

Company:

AEMG

CLIENT: Chrysler  
LOCATION: Rose Township  
PROJECT #: 106686.04

ENTER WELL LOCATION: LW-1 I

**INSPECTION**

Label on well?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	Is cap locked?	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
Is reference mark visible?	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	Standing water present?	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
Condition of well:	D.K.		Any indication of surface runoff in well?	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
Weather:	PARTLY CLOUDY, CALM		Air Temperature:	36°F	

Notes: SAMPLE ID #: 3W1I-102802-5Y

**STATIC WATER LEVEL JUST PRIOR TO PURGING**

Date: 10.28.02 Time: 0830 AM/PM

Depth to Water:	0.00	Measured with:	ELECTRONIC TAPE	CHALK & STEEL TAPE
Length of Well:	96.00	Decontamination:	PRE STEAM CLEANED	DI WATER OTHER

**WELL PURGING**

Date: 10.28.02	Begin Time: 0830	AM/PM	Purging Equipment: 2" BLADDER Pump
	End Time:	AM/PM	Decontamination: PRE STEAM CLEANED <input checked="" type="checkbox"/> DI WATER OTHER

**CALCULATION OF 3 CASING VOLUMES**

ft	Length of well
ft	- depth to water (before purge start)
ft	= length of water column
	x conversion factor (2" well) 0.49
Gallons	= 3 casing volumes

Yield:	HIGH <input checked="" type="checkbox"/> LOW	
If low, recovery time:	1" @ 20sec	
Actual volume purged:	95	gallons
Actual purge flow rate:	95	ml/min or
	L/min	

Notes: S = 0.72 mg/L, Mn = 1.1 mg/L

LOW RECOVERY TIME - COULD NOT STABILIZE H<sub>2</sub>O LINES

Time	Volume (gallons)	Depth to Water (feet)	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
<0.33'	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 5°	+/- 10 mV			
Start: 0855	-	2.96	7.35	605	>1000	13.40	9.90	-148.1	
0900	-	3.72	7.27	612	>1000	4.85	9.95	-130.1	
0905	-	4.13	7.20	616	605	1.95	9.93	-118.5	
0910	-	4.29	7.17	616	320	1.54	9.92	-114.2	
0915	-	4.54	7.16	615	100	1.38	10.01	-111.1	
0920	-	4.83	7.15	616	37	1.24	10.03	-110.1	
0925	-	5.14	7.14	616	34	1.16	10.04	-109.1	
0930	-	5.38	7.14	616	39	1.12	10.10	-106.4	2.88

Final:

**SAMPLE COLLECTION**

Date: 10.28.02 Time: 0935 AM/PM Method: 2" BLADDER

Appearance of Sample: CLEAR

SAMPLE BOTTLE(S) COLLECTED: VDL's, NA

**SAMPLING PERSONNEL**

Name: SUAN YANCHINA

Company: EARTH TECH RECOM

CLIENT: Chrysler

LOCATION: Rose Township

PROJECT #: 106686.04

ENTER WELL LOCATION:

DNR-S

## INSPECTION

Label on well?	YES	<input checked="" type="checkbox"/>	Is cap locked?	YES	<input checked="" type="checkbox"/>
Is reference mark visible?	YES	<input checked="" type="checkbox"/>	Standing water present?	YES	<input checked="" type="checkbox"/>
Condition of well:	Good		Any indication of surface runoff in well?	YES	<input checked="" type="checkbox"/>
Weather:	PARTLY CLOUDY, BREEZY		Air Temperature:	39°F	<input checked="" type="checkbox"/>
Notes:					

## STATIC WATER LEVEL JUST PRIOR TO PURGING

Date: 10.28.08 Time: 1030 AM/PM

Depth to Water:	2.90	Measured with:	ELECTRONIC TAPE	CHALK & STEEL TAPE
Length of Well:	99.00	Decontamination:	PRE STEAM CLEANED	DI WATER OTHER

## WELL PURGING

Date: 10.28.08 Begin Time: 1045 AM/PM Purging Equipment: 2" BLADDER  
 End Time: AM/PM Decontamination: PRE STEAM CLEANED DI WATER OTHER

## CALCULATION OF 3 CASING VOLUMES

ft	Length of well	Yield:	HIGH	LOW
ft	- depth to water (before purge start)	If low, recovery time:		
ft	= length of water column			
	x conversion factor (2" well) 0.49	Actual volume purged:	gallons	
Gallons	= 3 casing volumes	Actual purge flow rate:	80	ml/min or L/min

Notes: S = meter Limit Mn = meter Limit

Well has slow recovery time - H<sub>2</sub>O level would not stabilize

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start: 1100	-	2.94	7.24	501	60	2.35	10.75	-96.4	
1105	-	2.98	7.25	503	50	1.85	10.72	-97.7	
1110	-	2.98	7.23	504	47	1.71	10.73	-98.6	
1115	-	3.00	7.23	506	46	1.56	10.76	-97.4	
1120	-	3.03	7.23	508	42	1.43	10.81	-96.8	
1125	-	3.03	7.02	507	39	1.47	10.85	-94.6	
1130	3.03	7.02	508		36	1.37	10.88	-95.2	1.34
Final:									

## SAMPLE COLLECTION

Date: 10.28.08 Time: 1135 AM/PM Method: 2" BLADDER

Appearance of Sample: CLEAR Actual sample flow rate: ml/min or L/min

SAMPLE BOTTLE(S) COLLECTED: VOL'S, HA

## SAMPLING PERSONNEL

Name: John Yancusa

Company: LEONARD REED AGCOM

CLIENT: Chrysler

LOCATION: Rose Township

PROJECT #: 106686.04

ENTER WELL LOCATION:

GW-29

## INSPECTION

Label on well?

YES  
 NO

Is cap locked?

YES

NO  
 YES

Is reference mark visible?

Standing water present?

YES

Condition of well:

O.K.

Any indication of surface runoff in well?

YES

Weather:

OVERCAST, BREEZY

Air Temperature:

43°F

NO  
 YES

Notes: SAMPLE ID #: GW-29-102808-3Y

## STATIC WATER LEVEL JUST PRIOR TO PURGING

Date: Time: AM/PM

Depth to Water: 22.35

Measured with:

ELECTRONIC TAPE

Length of Well: 65.0

Decontamination:

PRE STEAM CLEANED

CHALK &amp; STEEL TAPE

DI WATER

OTHER

## WELL PURGING

Date: 10.28.08

Begin Time: 1240 AM/PM

Purging Equipment: 2" BLADDER

End Time: AM/PM

Decontamination: PRE STEAM CLEANED

DI WATER OTHER

## CALCULATION OF 3 CASING VOLUMES

ft Length of well

Yield:

HIGH

LOW

ft - depth to water (before purge start)

If low, recovery time:

ft = length of water column

Actual volume purged:

gallons

x conversion factor (2" well) 0.49

Actual purge flow rate:

ml/min or

Gallons = 3 casing volumes

175

L/min

Notes: S = 0.08 mg/L Mn = 0.0 mg/L

Time	Volume (gallons)	Depth to Water (feet)	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
1300	-	<0.33'	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 5°	+/- 10 mV	
Start: 10:55	-	22.35	7.13	514	6	8.57	9.60	-99.3	
1305	-	22.35	7.18	517	6	6.00	9.70	-104.7	
1310	-	22.35	7.17	519	6	4.14	9.71	-113.6	
1315	-	22.35	7.18	520	6	2.95	9.69	-118.5	
1320	-	22.35	7.20	522	5	2.32	9.72	-122.2	
1325	-	22.35	7.78	528	5	2.05	9.75	-125.7	
1330	-	22.35	9.47	557	5	1.63	9.74	-130.2	
1335	-	22.35	9.66	571	4	1.69	9.71	-129.4	
1340	-	22.35	8.48	575	4	1.65	9.71	-127.7	
1345	-	22.35	8.12	577	4	1.64	9.71	-124.8	4.82

Final:

## SAMPLE COLLECTION

Date: 10.28.08

Time: 1350 AM/PM

Method: 2" BLADDER

Appearance of Sample:

CLEAR

Actual sample flow rate: 175

ml/min or

L/min

SAMPLE BOTTLE(S) COLLECTED:

VOC'S, H/A

## SAMPLING PERSONNEL

Name: JOHN YANCHULA

Company: LEAPTA TEST AZZONI

CLIENT: Chrysler

LOCATION: Rose Township

PROJECT #: 106686.04

ENTER WELL LOCATION: GW 4D

## INSPECTION

Label on well? YES  NO   
 Is reference mark visible? YES  NO   
 Condition of well: O.K.  
 Weather: OVERCAST, SNOW  
 Notes: SAMPLE ID# GW4D-102808-JY

Is cap locked?

 YES NO

Standing water present?

 YES NO

Any indication of surface runoff in well?

 YES NO

Air Temperature:

42° F

## STATIC WATER LEVEL JUST PRIOR TO PURGING

Date: 10.28.08 Time: — AM/PM

Depth to Water: ARTESIAN  
 Length of Well: 114.00

Measured with: ELECTRONIC TAPE CHALK & STEEL TAPE  
 Decontamination: PRE STEAM CLEANED DI WATER OTHER

## WELL PURGING

Date: 10.28.08 Begin Time: 1530 AM/PM Purging Equipment: ARTESIAN  
 End Time: \_\_\_\_\_ AM/PM Decontamination: PRE STEAM CLEANED DI WATER OTHER

## CALCULATION OF 3 CASING VOLUMES

ft Length of well  
 ft - depth to water (before purge start)  
 ft = length of water column  
 x conversion factor (2" well) 0.49

Yield:  HIGH  LOW

If low, recovery time: \_\_\_\_\_

Gallons = 3 casing volumes

Actual volume purged: \_\_\_\_\_ gallons

Notes:  $S = 0.00 \text{ mg/L}$

Actual purge flow rate: 300  $\text{ml/min}$  or
 $F_e = 2.14 \frac{\text{L/min}}{\text{mg/L}}$ 

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start: 1545	-	-	7.41	567	1	1.69	9.77	-143.6	
1550	-	-	7.40	567	1	1.23	9.72	-141.2	
1555	-	-	7.20	573	1	0.97	9.81	-114.5	
1600	-	-	7.19	574	1	0.88	9.76	-111.5	
1605	-	-	7.18	574	1	0.84	9.78	-111.4	
1610	-	-	7.17	574	1	0.77	9.79	-111.1	2.14
Final:									

## SAMPLE COLLECTION

Date: 10.28.08 Time: 1615 AM/PM

Method: ARTESIANAppearance of Sample: CLEARActual sample flow rate: 300  $\text{ml/min}$  or  $\text{L/min}$ SAMPLE BOTTLE(S) COLLECTED: VOC's, NA

## SAMPLING PERSONNEL

Name: John YacktmanCompany: EARTH TECH AECOM

CLIENT: Chrysler

LOCATION: Rose Township

PROJECT #: 106686.04

ENTER WELL LOCATION:

GW-Z8I

## INSPECTION

Label on well?

 YES

NO

Is cap locked?

YES

 NO

Is reference mark visible?

 YES

NO

Standing water present?

YES

 NO

Condition of well:

GOOD

Any indication of surface runoff in well?

YES

 NO

Weather:

Overcast, ~~Wet~~ windy

Air Temperature:

45°F

Notes: GWZ8I - 102908-T6

## STATIC WATER LEVEL JUST PRIOR TO PURGING

Date: 10/29/2008

Time: 1300 AM/PM

Depth to Water:

26.33

Measured with:

ELECTRONIC TAPE

CHALK &amp; STEEL TAPE

Length of Well:

40ft

Decontamination:

PRE STEAM CLEANED

D/WATER

OTHER

## WELL PURGING

Date: 10/29/2008

Begin Time: 1300

AM/PM

Purging Equipment: Barnant Co. TSIB-02

End Time: 1410

AM/PM

Decontamination: PRE STEAM CLEANED

D/WATER OTHER

## CALCULATION OF 3 CASING VOLUMES

$$\begin{aligned}
 &\text{ft} \quad \text{Length of well} \\
 &\text{ft} \quad - \text{depth to water (before purge start)} \\
 &\text{ft} \quad = \text{length of water column} \\
 &\text{Gallons} \quad \times \text{conversion factor (2" well) 0.49} \\
 &\quad \quad \quad = 3 \text{ casing volumes}
 \end{aligned}$$

Yield:  HIGH  LOW

If low, recovery time:

Actual volume purged: 4 gallons  
Actual purge flow rate: \_\_\_\_\_ ml/min or  
L/min

Notes:

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O.* (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start: 1315	0.5	8.09	25.8	44.05	27.64	9.74	9.74	-11.3	
1320	0.75	7.70	26.2	29.68	10.81	9.57	9.57	-55.4	
1325	1.0	7.40	26.8	12.75	9.26	9.72	9.72	-152.2	
1330	1.5	7.46	26.5	57.00	8.66	9.68	9.68	-155.6	
1335	2.0	7.39	26.4	4.69	8.26	9.64	9.64	-155.6	
1340	2.5	7.39	26.7	3.20	7.81	9.63	9.63	-154.9	
1345	2.75	7.51	30.9	2.03	7.36	9.64	9.64	-149.9	
1350	3.0	7.30	64.9	3.11	1.14	9.69	9.69	-141.6	
1355	3.5	7.32	67.4	2.22	0.75	9.67	9.67	-145.1	
1400	4.0	7.32	69.7	1.63	0.72	9.73	9.73	-146.9	
Final: 1405	4.	7.32	69.7	1.63	0.72	9.73	9.73	-146.9	

## SAMPLE COLLECTION

Date: 10/29/2008

Time: 1405 AM/PM

Method: Low Flow

Appearance of Sample:

Clear

Actual sample flow rate: \_\_\_\_\_ ml/min or  
L/min

SAMPLE BOTTLE(S) COLLECTED:

VOC + Natural Attenuation

YSI 556 MPS, Micro Tpw

## SAMPLING PERSONNEL

Name: Trista Gregorsky

Company: Earth Tech AECOM

CLIENT: Chrysler

LOCATION: Rose Township

PROJECT #: 106686.04

ENTER WELL LOCATION:

GWZ8D

## INSPECTION

Label on well?

 YES

NO

Is cap locked?

YES

 NO

Is reference mark visible?

 YES

NO

Standing water present?

YES

 NO

Condition of well:

GOOP

Any indication of surface runoff in well?

YES

 NO

Weather:

overcast, wind

Air Temperature:

45°F

Notes:

GWZ8D-10290R-T6

## STATIC WATER LEVEL JUST PRIOR TO PURGING

Date: 10/29/2008

Time: 1335 AM/PM

Depth to Water:

26.32

Measured with:

 ELECTRONIC TAPE

CHALK &amp; STEEL TAPE

Length of Well:

Decontamination:

PRE STEAM CLEANED

 DLWATER

OTHER

## WELL PURGING

Date: 10/29/2008

Begin Time: 1420

AM/PM

Purging Equipment: Barnant Co. 7518-02

End Time: \_\_\_\_\_

AM/PM

Decontamination: PRE STEAM CLEANED  DLWATER OTHER

## CALCULATION OF 3 CASING VOLUMES

ft Length of well

ft - depth to water (before purge start)

ft = length of water column

x conversion factor (2" well) 0.49

Gallons = 3 casing volumes

Yield:

 HIGH

LOW

If low, recovery time:

Actual volume purged:

2

gallons

ml/min or

L/min

Notes:

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start: 1430	0.5	7.91	37.8	1.06	1.22	0.40	9.66	-220.7	
1435	0.75	7.91	38.1	0.39	0.40	0.76	9.76	-233.8	
1440	1.0	7.94	38.4	0.28	0.77	0.73	9.70	-239.8	
1445	1.25	7.93	38.5	0.23	0.73	0.62	9.62	-243.4	
1450	1.5	7.95	38.6	0.26	0.73	0.66	9.66	-249.3	
Final: 1455	2	7.95	38.6	0.26	0.73	0.66	9.66	-249.3	

## SAMPLE COLLECTION

Date: 10/29/2008

Time: 1455 AM/PM

Method: Low Flow

Appearance of Sample:

gray

Actual sample flow rate: ml/min or L/min

SAMPLE BOTTLE(S) COLLECTED: VOC + Natural Attenuation

Micro TPW, YSI 556 MPS

## SAMPLING PERSONNEL

Name: TRISTA Gregorski TMy

Company: EarthTech AECOM

CLIENT: Chrysler  
LOCATION: Rose Township  
PROJECT #: 106686.04

ENTER WELL LOCATION: GW 19 S

**INSPECTION**

Label on well?	<input checked="" type="checkbox"/> YES	NO	Is cap locked?	YES	<input checked="" type="checkbox"/> NO
Is reference mark visible?	<input checked="" type="checkbox"/> YES	NO	Standing water present?	YES	<input checked="" type="checkbox"/> NO
Condition of well:	<u>Good</u>		Any indication of surface runoff in well?	YES	<input checked="" type="checkbox"/> NO
Weather:	<u>Partly Cloudy</u>		Air Temperature:	<u>36°C</u>	
Notes:	<u>GW 19 S - 102308-JY / YSI pH NOT CALIBRATING</u>				

**STATIC WATER LEVEL JUST PRIOR TO PURGING**

Date: 10/23/08 Time: 8:15 AM/PM

Depth to Water:	<u>40' GSS</u>	Measured with:	ELECTRONIC TAPE	CHALK & STEEL TAPE
Length of Well:	<u>-</u>	Decontamination:	PRE STEAM CLEANED	DI WATER OTHER

**WELL PURGING**

Date:	<u>10/23/08</u>	Begin Time:	<u>8:15</u>	AM/PM	Purging Equipment:			
		End Time:		AM/PM	Decontamination:	PRE STEAM CLEANED	DI WATER	OTHER

**CALCULATION OF 3 CASING VOLUMES**

ft	Length of well	Yield:	<input checked="" type="checkbox"/> HIGH	LOW
ft	- depth to water (before purge start)	If low, recovery time:		
ft	= length of water column			
	x conversion factor (2" well) 0.49	Actual volume purged:	gallons	
Gallons	= 3 casing volumes	Actual purge flow rate:	ml/min or	
Notes:	<u>S = 0.02 mg/L, Mn = 0.2 mg/L</u>			
			L/min	

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start:									
8:20	-	-	8.34	592	0	9.05	9.61	-113	
0930	-	-	8.11	590	0	0.51	9.63	-122.5	
0935	-	-	7.98	590	0	0.34	9.64	-126.7	
0940	-	-	7.73	588	0	0.32	9.44	-129.8	
0945	-	-	7.82	588	0	0.37	9.65	-131.7	
10550	-	-	7.75	588	0	0.24	9.70	-129.4	
0855	-	-	7.74	588	0	0.21	9.71	-130.5	
0858	-	-	7.78	588	0	0.20	9.71	-129.7	1.60
Final:									

**SAMPLE COLLECTION**

Date: 10/23/08 Time: 09:00 AM/PM Method: ARIES TAN

Appearance of Sample: CLEAR

Actual sample flow rate: \_\_\_\_\_ ml/min or  
L/min

SAMPLE BOTTLE(S) COLLECTED: VOC's, NA

**SAMPLING PERSONNEL**

Name: John Vancilka

Company: ISARRA TEST ACCOUNT

CLIENT: Chrysler

LOCATION: Rose Township

PROJECT #: 106686.04

ENTER WELL LOCATION:

GW-19D

## INSPECTION

Label on well?

YES

NO

Is cap locked?

YES

NO

Is reference mark visible?

YES

NO

Standing water present?

YES

NO

Condition of well:

Good

Any indication of surface runoff in well?

YES

NO

Weather:

51°F, Sunny, 61% r.h.

Air Temperature:

51°F

Notes:

GW 19D-102308-AXS

## STATIC WATER LEVEL JUST PRIOR TO PURGING

Date: \_\_\_\_\_ Time: \_\_\_\_\_ AM/PM

Depth to Water: ARTESIAN

Measured with:

ELECTRONIC TAPE

CHALK &amp; STEEL TAPE

Length of Well: \_\_\_\_\_

Decontamination:

PRE STEAM CLEANED

DI WATER

OTHER

## WELL PURGING

Date: 10/23/08Begin Time: 0920 AM/PMPurging Equipment: ARTESIAN

End Time: \_\_\_\_\_ AM/PM

Decontamination: PRE STEAM CLEANED DI WATER OTHER

## CALCULATION OF 3 CASING VOLUMES

ft Length of well

Yield: HIGH LOW

ft - depth to water (before purge start)

If low, recovery time: \_\_\_\_\_

ft = length of water column

Actual volume purged: \_\_\_\_\_ gallons

x conversion factor (2" well) 0.49

Actual purge flow rate: \_\_\_\_\_ ml/min or

Gallons = 3 casing volumes

L/min

Notes:  $S = 0 \text{ mg/L}$      $M_n = 0 \text{ mg/L}$      $F_d = 1.74$ 

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
<b>Start:</b>									
9:40	-	-	7.34	865	0	1.36	9.80	-74	
9:45	-	-	7.34	865	0	1.25	9.80	-70	
9:50	-	-	7.33	861	0	1.06	9.85	-69	
9:55	-	-	7.33	859	0	1.13	9.91	-68	
10:00	-	-	7.33	855	0	1.08	9.89	-68	
10:03	-	-	7.33	853	0	0.98	9.83	-67	
<b>Final:</b>									

## SAMPLE COLLECTION

Date: 10/23/08Time: 10:40 AM/PMMethod: Artesian

Appearance of Sample:

Clear

Actual sample flow rate: \_\_\_\_\_ ml/min or  
L/minSAMPLE BOTTLE(S) COLLECTED: VOC, NA

## SAMPLING PERSONNEL

Name: AUTAR MAVI + Alisa SchoeffCompany: AEMG

CLIENT: Chrysler  
LOCATION: Rose Township  
PROJECT #: 106686.04

ENTER WELL LOCATION: GW 201

INSPECTION												
Label on well?	<input checked="" type="radio"/> YES	NO	Is cap locked?	YES	NO							
Is reference mark visible?	<input checked="" type="radio"/> YES	NO	Standing water present?	YES	NO							
Condition of well:	<u>Good</u>			Any indication of surface runoff in well?	YES	NO						
Weather:	<u>Partly cloudy</u>			Air Temperature:	<u>35° F</u>							
Notes:	<u>GW201-102308-A5, GW201D-102308-A5</u>											
STATIC WATER LEVEL JUST PRIOR TO PURGING												
Date:	Time: AM/PM			Taken at 1130								
Depth to Water:				Measured with:	ELECTRONIC TAPE	CHALK & STEEL TAPE						
Length of Well:				Decontamination:	PRE STEAM CLEANED	DI WATER OTHER						
WELL PURGING												
Date: 10/23/08	Begin Time: 10:30	AM/PM	Purging Equipment: ARTESIAN									
	End Time: _____	AM/PM	Decontamination: PRE STEAM CLEANED	DI WATER	OTHER							
CALCULATION OF 3 CASING VOLUMES												
ft	Length of well			Yield: HIGH LOW								
ft	- depth to water (before purge start)			If low, recovery time: _____								
ft	= length of water column			Actual volume purged: _____ gallons								
Gallons	x conversion factor (2" well) 0.49			Actual purge flow rate: _____ ml/min or								
	= 3 casing volumes			L/min								
Notes:	<u>S = 0.0 mg/L, Fe = 1.64 mg/L, Mn = 0.4 mg/L</u>											
Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)			
Start:			+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 5°	+/- 10 mV				
10:45	-	-	7.38	913	0	1.07	9.32	-49				
10:50	-	-	7.33	912	0	0.80	9.36	-51				
10:55	-	-	7.32	912	0	0.72	9.33	-53				
11:00	-	-	7.31	911	0	0.63	9.42	-53				
11:05	-	-	7.33	911	0	0.76	9.47	-54				
11:10			7.32	912	0	0.72	9.52	-55				
Final:												
SAMPLE COLLECTION												
Date: 10/23/08	Time: 1115	AM/PM	Method: ARTESIAN									
Appearance of Sample:	<u>Clear</u>			Actual sample flow rate: _____	ml/min or							
SAMPLE BOTTLE(S) COLLECTED:	<u>VOC, NA</u>			L/min								
SAMPLING PERSONNEL												
Name: ANTAR MAVI				Company: AEMG								

CLIENT: Chrysler

LOCATION: Rose Township

PROJECT #: 106686.04

ENTER WELL LOCATION:

GW 20D

## INSPECTION

Label on well?

 YES

NO

Is cap locked?

YES

 NO

Is reference mark visible?

 YES

NO

Standing water present?

YES

 NO

Condition of well:

Good

Any indication of surface runoff in well?

YES

 NO

Weather:

Clear, calm

Air Temperature:

Notes:

GW 20D-102308-AS

## STATIC WATER LEVEL JUST PRIOR TO PURGING

Date:

Time:

AM/PM

## Depth to Water:

Measured with:

ELECTRONIC TAPE

CHALK &amp; STEEL TAPE

Length of Well:

Decontamination:

PRE STEAM CLEANED

DI WATER

OTHER

## WELL PURGING

Date: 10/23/08

Begin Time: 11:25

AM/PM

Artesian

End Time:

AM/PM

Purging Equipment:

Decontamination:

PRE STEAM CLEANED

DI WATER

OTHER

## CALCULATION OF 3 CASING VOLUMES

ft Length of well

Yield:

 HIGH LOW

ft - depth to water (before purge start)

If low, recovery time:

ft = length of water column

Actual volume purged:

gallons

x conversion factor (2" well) 0.49

Actual purge flow rate:

ml/min or

Gallons = 3 casing volumes

Notes:

 $S = 0.1 \text{ mg/L}$ ,  $Fe = 1.83 \text{ mg/L}$ ,  $Mn = 0.6 \text{ mg/L}$ 

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start:									
11:45	-	-	7.37	893	0	1.79	9.77	-60	
11:50	-	-	7.37	891	0	1.51	9.79	-61	
11:55	-	-	7.38	891	0	1.23	9.83	-63	
12:00	-	-	7.38	891	0	1.15	9.80	-65	
12:05	-	-	7.38	888	0	0.88	9.83	-658	
12:10	-	-	7.39	888	0	0.80	9.84	-673	
12:15	-	-	7.38	888	0	0.78	9.87	-68.2	
Final:									

## SAMPLE COLLECTION

Date: 10/23/08

Time: 12:20 AM/PM

Method: ARTESIAN

Appearance of Sample:

Clear

Actual sample flow rate:

ml/min or

L/min

SAMPLE BOTTLE(S) COLLECTED:

VGC, WA

## SAMPLING PERSONNEL

Name: Alison Schaeff &amp; Avtar Maru

Company: EarthTech AECOM

CLIENT: Chrysler  
LOCATION: Rose Township  
PROJECT #: 106686.04

ENTER WELL LOCATION: GW 21D

**INSPECTION**

Label on well?	<input checked="" type="checkbox"/> YES	NO	Is cap locked?	YES	NO
Is reference mark visible?	<input checked="" type="checkbox"/> YES	NO	Standing water present?	YES	NO
Condition of well:	<u>O.K.</u>		Any indication of surface runoff in well?	YES	NO
Weather:	<u>CLEAR, BREEZY</u>		Air Temperature:	<u>55°F</u>	

Notes:

SAMPLE ID: GW21D - 102308 - AS

**STATIC WATER LEVEL JUST PRIOR TO PURGING**

Date: 10.23.08 Time: AM/PM

Depth to Water:

Measured with: ELECTRONIC TAPE      CHALK & STEEL TAPE

Length of Well:

Decontamination: PRE STEAM CLEANED      DI WATER      OTHER

**WELL PURGING**

Date: <u>10.23.08</u>	Begin Time: <u>1235</u> AM/PM	Purging Equipment: <u>Artesian</u>
	End Time: <u>1325</u> AM/PM	Decontamination: PRE STEAM CLEANED      DI WATER      OTHER

**CALCULATION OF 3 CASING VOLUMES**

ft      Length of well

Yield:  HIGH      LOW

ft      - depth to water (before purge start)

If low, recovery time: \_\_\_\_\_

ft      = length of water column

Actual volume purged: \_\_\_\_\_ gallons

x conversion factor (2" well) 0.49

Actual purge flow rate: \_\_\_\_\_ ml/min or

Gallons      = 3 casing volumes

L/min

Notes: S=0.0 mg/L Mn=0.1 mg/L

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start: 1300	-	-	7.53	778	0	1.10	10.00	-72.2	
1305	-	-	7.51	779	0	0.95	9.92	-72.4	
1310	-	-	7.52	778	1	0.91	9.90	-72.6	
1315	-	-	7.52	777	0	0.84	9.97	-72.5	
1320	-	-	7.51	778	1	0.77	9.98	-72.7	1-10
Final:									

**SAMPLE COLLECTION**

Date: 10.23.08 Time: 1325 AM/PM

Method: Artesian

Appearance of Sample:

CLEAR

Actual sample flow rate: \_\_\_\_\_ ml/min or  
L/min

SAMPLE BOTTLE(S) COLLECTED: VOL'S, 14A

**SAMPLING PERSONNEL**

Name: MICHAEL SCHREFF, Justin Yancura Company: INNERTECH AECOM

CLIENT: Chrysler  
LOCATION: Rose Township  
PROJECT #: 106686.04

ENTER WELL LOCATION: GWL 215

INSPECTION									
Label on well?	<input checked="" type="checkbox"/> YES	NO	Is cap locked?	YES	<input checked="" type="checkbox"/>				
Is reference mark visible?	<input checked="" type="checkbox"/> YES	NO	Standing water present?	YES	<input checked="" type="checkbox"/>				
Condition of well:	<u>O.K.</u>		Any indication of surface runoff in well?	YES	<input checked="" type="checkbox"/>				
Weather:	<u>CLEAR, BREEZY</u>		Air Temperature:	<u>55° F</u>	<input checked="" type="checkbox"/>				
Notes:									
STATIC WATER LEVEL JUST PRIOR TO PURGING									
Date:	<u>ARTESIAN</u>		Time:	AM/PM					
Depth to Water:			Measured with:	ELECTRONIC TAPE		CHALK & STEEL TAPE			
Length of Well:			Decontamination:	PRE STEAM CLEANED		DI WATER OTHER			
WELL PURGING									
Date:	<u>10.23.08</u>	Begin Time:	<u>1330</u>	AM/PM	Purging Equipment:				
End Time:				AM/PM	Decontamination:	PRE STEAM CLEANED	DI WATER	OTHER	
CALCULATION OF 3 CASING VOLUMES									
ft	Length of well								
ft	- depth to water (before purge start)								
ft	= length of water column								
	x conversion factor (2" well) 0.49								
Gallons	= 3 casing volumes								
Notes:	$S = 0.0 \text{ mg/L}, M_n = 0.1 \text{ mg/L}$								
Yield:	<input checked="" type="checkbox"/> HIGH	LOW							
If low, recovery time:									
Actual volume purged:	gallons								
Actual purge flow rate:	ml/min or								
	L/min								
Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start: 1340	-	-	7.37	892	6	0.64	9.95	-55.4	
1345	-	-	7.34	900	3	0.58	10.06	-54.4	
1350	-	-	7.34	903	4	0.58	10.07	-54.6	
1355	-	-	7.34	903	2	0.55	10.13	-54.8	1.51
Final:									
SAMPLE COLLECTION									
Date: 10.23.08	Time: 1400 AM/PM	Method: <u>ARTESIAN</u>							
Appearance of Sample:	<u>CLEAR</u>								
SAMPLE BOTTLE(S) COLLECTED:	<u>VOC's, NA</u>								
SAMPLING PERSONNEL									
Name: ALISON SCHOEGE, JANE YANICHUS	Company: EARTH TECH AECOM								

CLIENT: Chrysler  
LOCATION: Rose Township  
PROJECT #: 106686.04

ENTER WELL LOCATION:

GW 261

**INSPECTION**

Label on well?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	Is cap locked?	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
Is reference mark visible?	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	Standing water present?	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
Condition of well:	<u>Good</u>		Any indication of surface runoff in well?	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
Weather:	<u>Cloudy</u>		Air Temperature:	<u>37</u>	
Notes:					

GW 261 - 10/27/08 - AM

**STATIC WATER LEVEL JUST PRIOR TO PURGING**

Date: 10/27/08 Time: 8:15 AM/PM

Depth to Water: 13.62  
Length of Well: 72'

Measured with:	<input checked="" type="checkbox"/> ELECTRONIC TAPE	<input type="checkbox"/> CHALK & STEEL TAPE
Decontamination:	<input type="checkbox"/> PRE STEAM CLEANED	<input checked="" type="checkbox"/> DI WATER
		OTHER

**WELL PURGING**

Date: 10/27/08	Begin Time: 8:20 AM/PM	Purging Equipment: <u>Peristaltic</u>
	End Time: _____ AM/PM	Decontamination: <input type="checkbox"/> PRE STEAM CLEANED <input checked="" type="checkbox"/> DI WATER OTHER

**CALCULATION OF 3 CASING VOLUMES**

ft	Length of well
ft	- depth to water (before purge start)
ft	= length of water column
	x conversion factor (2" well) 0.49
Gallons	= 3 casing volumes

Yield:	HIGH	LOW
If low, recovery time:	_____	
Actual volume purged:	gallons	
Actual purge flow rate:	<u>~200</u>	ml/min or L/min

Notes:  $S = 0.01 \text{ my/L}$   $Fe = 1.86 \text{ my/L}$   $Mn = 0.8 \text{ my/L}$

Time	Volume (gallons)	Depth to Water (feet)	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start:									
8:20	0.1	14.23	7.65	852	1.65	4.39	10.36	-68	
8:30	0.5	14.47	7.39	834	1.32	2.4	10.24	-68	
8:35	0.9	14.59	7.15	833	1.03	1.37	10.08	-59	
8:40	1.2	14.65	7.33	831	1.00	1.17	10.08	-57	
8:45	1.8	14.65	7.32	830	0.99	1.16	10.06	-58	
8:50	2.7	14.65	7.32	829	0.96	1.12	10.05	-62	
8:55	2.6	14.65	7.31	828	0.81	0.97	10.06	-64	
9:00	3.0	14.65	7.31	927	0.82	0.97	10.04	-65	

Final:

**SAMPLE COLLECTION**  
Date: 10/27/08 Time: 9:05 AM/PM Method: Peristaltic

Appearance of Sample: Clear Actual sample flow rate: 200 ml/min or L/min

SAMPLE BOTTLE(S) COLLECTED: VOC, NA

**SAMPLING PERSONNEL**  
Name: AVI TARI MASI Company: AEMG



CLIENT: Chrysler

LOCATION: Rose Township

PROJECT #: 106686.04

ENTER WELL LOCATION: GW25D

## INSPECTION

Label on well?

YES

NO

Is cap locked?

YES

NO

Is reference mark visible?

YES

NO

Standing water present?

YES

NO

Condition of well:

Good

Any indication of surface runoff in well?

YES

NO

Weather:

Partly cloudy

Air Temperature:

38° F

Notes:

Non-flowing artesian well disposal truck used; GW25D-102708-40

## STATIC WATER LEVEL JUST PRIOR TO PURGING

Date: 10/27/08

Time: 11:20 AM/PM

Depth to Water:

0.6'

Measured with:

ELECTRONIC TAPE

Length of Well:

Decontamination:

PRE STEAM CLEANED

CHALK &amp; STEEL TAPE

DI WATER

OTHER

## WELL PURGING

Date: 10/27/08

Begin Time: 10:25 AM/PM

End Time: \_\_\_\_\_ AM/PM

Purging Equipment:

Peristaltic

Decontamination:

PRE STEAM CLEANED

DI WATER

OTHER

## CALCULATION OF 3 CASING VOLUMES

ft Length of well

Yield: HIGH LOW

ft - depth to water (before purge start)

If low, recovery time: \_\_\_\_\_

ft = length of water column

Actual volume purged: \_\_\_\_\_ gallons

x conversion factor (2" well) 0.49

Actual purge flow rate: 250 ml/min or

Gallons = 3 casing volumes

Notes: S = 0 mg/L Fe = 0.86 mg/L Mn = 1.0 mg/L

Time	Volume (gallons)	Depth to Water (feet)	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start:		<0.33'	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 5°	+/- 10 mV	
10:30	0.9	0.7	7.62	865	1.71	0.66	10.59	-197	
10:35	1.3	0.7	7.61	868	1.62	0.57	10.24	-228	
10:40	2.0	0.7	7.58	869	1.41	0.57	10.14	-233	
10:45	2.5	0.7	7.51	869	1.13	0.56	10.09	-223	
11:50	3.0	0.7	7.48	870		0.57	10.09	-218	
Final:									

## SAMPLE COLLECTION

Date: 10/27/08

Time: 11:55 AM/PM

Method: Peristaltic

Appearance of Sample:

Clear

Actual sample flow rate: 200 ml/min or L/min

SAMPLE BOTTLE(S) COLLECTED:

VOC, NA

## SAMPLING PERSONNEL

Name: AVTAR MAVE

Company:

AEMG

CLIENT: Chrysler

LOCATION: Rose Township

PROJECT #: 106686.04

ENTER WELL LOCATION:

GW 24 I

## INSPECTION

Label on well?

YES

NO

Is cap locked?

YES

NO

Is reference mark visible?

YES

NO

Standing water present?

YES

NO

Condition of well:

Good

Any indication of surface runoff in well?

YES

NO

Weather:

Cloudy

Air Temperature:

38° F

Notes:

GW 24 I - 102708 - AM

## STATIC WATER LEVEL JUST PRIOR TO PURGING

Date: 10/27/08

Time: 12:35 AM/PM

Depth to Water:

5.3'

Measured with:

ELECTRONIC TAPE

CHALK &amp; STEEL TAPE

Length of Well:

Decontamination:

PRE STEAM CLEANED

DI WATER

OTHER

## WELL PURGING

Date: 10/27/08

Begin Time: 12:40 AM/PM

Purging Equipment:

End Time:

AM/PM

Decontamination:

PRE STEAM CLEANED

DI WATER

OTHER

## CALCULATION OF 3 CASING VOLUMES

ft Length of well

ft - depth to water (before purge start)

ft = length of water column

x conversion factor (2" well) 0.49

Gallons = 3 casing volumes

Yield:

HIGH LOW

If low, recovery time:

Actual volume purged:

gallons

Actual purge flow rate:

ml/min or

Notes:

 $S = 0 \text{ myc} \quad Fe = 2.09 \text{ myc}$  $Mn = 0.4 \text{ myc}$ 

L/min

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
approx.									
12:40	0.2	5.41	7.53	807	2.21	3.67	9.98	-91	
12:45	1.0	5.41	7.50	818	1.86	1.26	9.97	-119	
12:50	1.5	5.41	7.51	820	1.42	0.91	9.89	-133	
12:55	2.0	5.41	7.52	820	1.31	0.82	9.93	-141	
1:00	2.5	5.41	7.51	819	1.25	0.62	9.93	-142	
1:05	3.0	5.41	7.49	818	0.7	0.64	9.94	-144	
Final:									

## SAMPLE COLLECTION

Date: 10/27/08

Time: 13:10 AM/PM

Method:

Bottle

Appearance of Sample:

Clear

Actual sample flow rate: \_\_\_\_\_ ml/min or  
\_\_\_\_\_ L/min

SAMPLE BOTTLE(S) COLLECTED:

VOCs, NA

## SAMPLING PERSONNEL

Name:

Avery Mori

Company:

AEMC

CLIENT: Chrysler  
LOCATION: Rose Township  
PROJECT #: 106686.04

ENTER WELL LOCATION: GW 24D

INSPECTION

Label on well?

YES

NO

Is cap locked?

YES

NO

Is reference mark visible?

YES

NO

Standing water present?

YES

NO

Condition of well:

Good

Weather:

Rainy

Notes:

GW 24D-102708-AM

STATIC WATER LEVEL JUST PRIOR TO PURGING

Date: 10/27/08 Time: 13:20 AM/PM

Depth to Water:

1.3'

Measured with:

ELECTRONIC TAPE

CHALK & STEEL TAPE

Length of Well:

Decontamination:

PRE STEAM CLEANED

DI WATER

OTHER

WELL PURGING

Date: 10/27

Begin Time: 13:30 AM/PM

Purging Equipment:

Peristaltic

End Time: 13:30 AM/PM

Decontamination:

PRE STEAM CLEANED

DI WATER OTHER

CALCULATION OF 3 CASING VOLUMES

ft Length of well

Yield: HIGH LOW

ft - depth to water (before purge start)

If low, recovery time:

ft = length of water column

Actual volume purged:

gallons

x conversion factor (2" well) 0.49

Actual purge flow rate:

ml/min or

Gallons = 3 casing volumes

200 ml/min

Notes:

$$S = 0.04 \text{ mg/l} \quad Pe = \frac{1.10 \text{ mg/l}}{\text{mg/l}} \quad M_n = 1.0 \text{ mg/l}$$

Time	Volume (gallons)	Depth to Water (feet)	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start:	Approx	<0.33'	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 5°	+/- 10 mV	
13:35	1.0	2.37	7.42	852	0.78	1.97	9.88	-111	
13:40	1.4	2.39	7.41	850	0.78	0.93	9.82	-118	
13:45	1.0	2.39	7.41	849	0.74	0.75	9.79	-123	
13:50	2.7	2.42	7.40	850	0.72	0.69	9.82	-126	
13:55	2.7	2.42	7.40	848	0.70	0.68	9.85	-130	
Final:									

SAMPLE COLLECTION

Date: 10/27/08

Time: 14:10 AM/PM

Method: Peristaltic

Appearance of Sample:

Clear

Actual sample flow rate:

200

ml/min or  
L/min

SAMPLE BOTTLE(S) COLLECTED:

VOC, NA

SAMPLING PERSONNEL

Name: Aman Manji

Company: AEMG

CLIENT: Chrysler  
LOCATION: Rose Township  
PROJECT #: 106686.04

ENTER WELL LOCATION:

GW26D

INSPECTION

Label on well?

YES

NO

Is cap locked?

YES

NO

Is reference mark visible?

YES

NO

Standing water present?

YES

Condition of well:

Good

Any indication of surface runoff in well?

YES

Weather:

Pearly

Air Temperature:

NO

NO

Notes:

GW26D-102708-AM

STATIC WATER LEVEL JUST PRIOR TO PURGING

Date: 10/27/08

Time 1430 AM/PM

Depth to Water:

10.82

Measured with:

ELECTRONIC TAPE

CHALK & STEEL TAPE

Length of Well:

\_\_\_\_\_

Decontamination:

PRE STEAM CLEANED

DI WATER

OTHER

WELL PURGING

Date: 10/27/08

Begin Time: 14:35 AM/PM

End Time: \_\_\_\_\_ AM/PM

Purging Equipment:

Pervialator

Decontamination:

PRE STEAM CLEANED

DI WATER

OTHER

CALCULATION OF 3 CASING VOLUMES

ft Length of well

ft - depth to water (before purge start)

ft = length of water column

x conversion factor (2" well) 0.49

Gallons = 3 casing volumes

Yield:

HIGH LOW

If low, recovery time:

Actual volume purged:

gallons

Actual purge flow rate:

ml/min or

Notes:

$$S = 0.02 \text{ mg/L}, Fe = 3.02 \text{ mg/L}, Mn = 1.2 \text{ mg/L}$$

L/min

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start:									
14:40	0.5	10.92	7.57	816	1.14	1.98	10.25	-142	
14:45	1.0	10.92	7.58	816	0.80	1.23	10.21	-150	
14:50	1.5	10.92	7.56	816	0.58	0.75	10.20	-148	
14:55	2.0	10.92	7.55	816	0.54	0.24	10.18	-111	
15:00	2.5	10.92	7.54	815	0.50	0.69	10.17	-114	
Final:									

SAMPLE COLLECTION

Date: 10/27/08

Time: 1505 AM/PM

Method: Pervialator

Appearance of Sample:

clear

Actual sample flow rate:

200

ml/min or

L/min

SAMPLE BOTTLE(S) COLLECTED:

NOC, NA

SAMPLING PERSONNEL

Name: ANWAR MANGI

Company: AEMG

CLIENT: Chrysler

LOCATION: Rose Township

PROJECT #: 106686.04

ENTER WELL LOCATION: MW1-2T

## INSPECTION

Label on well?	<input checked="" type="checkbox"/> YES	NO	Is cap locked?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
Is reference mark visible?	<input checked="" type="checkbox"/> YES	NO	Standing water present?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
Condition of well:	O.K.		Any indication of surface runoff in well?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
Weather:	<u>overcast, part</u>		Air Temperature:	<u>43 F</u>	

Notes:

SAMPLE ID#: MW2T-102708-5Y

## STATIC WATER LEVEL JUST PRIOR TO PURGING

Date: 10.27.08 Time: 0815 AM/PM

Depth to Water:	<u>22.72</u>	Measured with:	<input checked="" type="checkbox"/> ELECTRONIC TAPE	CHALK & STEEL TAPE
Length of Well:	<u>63.00</u>	Decontamination:	<input checked="" type="checkbox"/> PRE STEAM CLEANED	DI WATER OTHER

## WELL PURGING

Date:	<u>10.27.08</u>	Begin Time:	<u>0820</u>	AM/PM	Purging Equipment:	<u>2" BLADDER</u>
		End Time:		AM/PM	Decontamination:	<input checked="" type="checkbox"/> PRE STEAM CLEANED

## CALCULATION OF 3 CASING VOLUMES

ft	Length of well	Yield:	<input checked="" type="checkbox"/> HIGH	LOW
ft	- depth to water (before purge start)	If low, recovery time:		
ft	= length of water column	Actual volume purged:		
Gallons	x conversion factor (2" well) 0.49	Actual purge flow rate:	<u>200</u>	gallons ml/min or L/min
	= 3 casing volumes			
Notes:	<u>S = 1.76 mg/L (4), Mn = 0.17 mg/L</u>			

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start: 0900	-	22.80	6.82	625	95	2.67	9.93	-90.6	
0905	-	22.80	6.83	626	91	2.83	9.90	-90.5	
0910	-	22.80	6.85	626	87	2.75	9.86	-89.4	
0915	-	22.80	6.85	626	79	2.62	9.87	-90.5	3.27
Final:									

## SAMPLE COLLECTION

Date: 10.27.08 Time: 0825 AM/PM

Method: 2" BLADDER

Appearance of Sample:

Actual sample flow rate: 200 ml/min or L/minSAMPLE BOTTLE(S) COLLECTED: VOC's, N/A

## SAMPLING PERSONNEL

Name: John YanchulaCompany: EARTH TECH AECOM

CLIENT: Chrysler

LOCATION: Rose Township

PROJECT #: 106686.04

ENTER WELL LOCATION:

MW1-31

## INSPECTION

Label on well?

NO

Is reference mark visible?

NO

Condition of well:

O.K.

Is cap locked?

YES

Weather:

overcast, rain

Standing water present?

YES

Notes:

SAMPLE ID#: MW1-31-102708-3 Y

Any indication of surface runoff in well?

YES

Air Temperature:

143°

## STATIC WATER LEVEL JUST PRIOR TO PURGING

Date: 10.27.08

Time: 0950 AM/PM

## Depth to Water:

30.70

Measured with:

Length of Well:

80.00

Decontamination:

 ELECTRONIC TAPE

CHALK &amp; STEEL TAPE

PRE STEAM CLEANED

 DI WATER

OTHER

## WELL PURGING

Date: 10.27.08

Begin Time: 0955 AM/PM

End Time: \_\_\_\_\_ AM/PM

Purging Equipment: 2" BLADDER

Decontamination: PRE STEAM CLEANED DI WATER OTHER

## CALCULATION OF 3 CASING VOLUMES

ft Length of well

Yield:  HIGH  LOW

ft - depth to water (before purge start)

If low, recovery time: \_\_\_\_\_

ft = length of water column

Actual volume purged: \_\_\_\_\_ gallons

x conversion factor (2" well) 0.49

Actual purge flow rate: \_\_\_\_\_ ml/min or

Gallons = 3 casing volumes

L/min

Notes:  $S = 0.63 \text{ mg/L}$ ,  $Mn = 0.5 \text{ mg/L}$ 

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start: 1025	-	30.70	7.05	581	75	2.93	9.49	-96.0	
1030	-	30.70	7.08	584	62	4.71	9.46	-85.4	
1035	-	30.70	7.08	584	57	4.10	9.46	-86.2	
1040	-	30.70	7.08	586	50	3.20	9.46	-87.9	
1045	-	30.70	7.08	587	48	2.91	9.41	-87.4	
1050	-	30.70	7.08	587	49	2.88	9.46	-87.9	
1055	-	30.70	7.08	587	49	2.74	9.45	-85.1	1.85
Final:									

## SAMPLE COLLECTION

Date: 10.27.08

Time: 1100 AM/PM

Method: 2" BLADDER

Appearance of Sample:

CLEAR

Actual sample flow rate: 220 ml/min or  
L/min

SAMPLE BOTTLE(S) COLLECTED:

VOC's, NA

## SAMPLING PERSONNEL

Name: John Yanchula

Company: EARTH TECH AECOM

CLIENT: Chrysler  
LOCATION: Rose Township  
PROJECT #: 106686.04

ENTER WELL LOCATION: RW-2

**INSPECTION**

Label on well?	<input checked="" type="radio"/> YES	NO	Is cap locked?	YES	<input type="radio"/> NO
Is reference mark visible?	<input checked="" type="radio"/> YES	NO	Standing water present?	YES	<input type="radio"/> NO
Condition of well:	<u>G.K.</u>		Any indication of surface runoff in well?	YES	<input type="radio"/> NOT
Weather:	<u>P. CLOUDY, BREEZY</u>		Air Temperature:	<u>44°F</u>	

Notes:

SAMPLE ID #: RW2-102708-JY

**STATIC WATER LEVEL JUST PRIOR TO PURGING**

Date: 10.27.08 Time: 10:48 AM/PM  
1135

Depth to Water: 48.48  
Length of Well:

Measured with: ELECTRONIC TAPE  
Decontamination: PRE STEAM CLEANED CHALK & STEEL TAPE  
 DI WATER OTHER

**WELL PURGING**

Date: 10.27.08 Begin Time: 11:45 AM/PM Purging Equipment: 2" BLADDER  
End Time: \_\_\_\_\_ AM/PM Decontamination: PRE STEAM CLEANED  DI WATER OTHER

**CALCULATION OF 3 CASING VOLUMES**

ft Length of well  
ft - depth to water (before purge start)  
ft = length of water column  
x conversion factor (2" well) 0.49

Yield:  HIGH LOW

Gallons = 3 casing volumes

If low, recovery time:

Actual volume purged: \_\_\_\_\_ gallons  
Actual purge flow rate: 175 ml/min or  
L/min

Notes: S = 0.70 mg/L Mn = 0.4 mg/L

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start: 12:00	-	48.58	7.20	567	190	2.31	10.70	-9.0	
1225	-	48.58	7.19	570	178	2.18	10.72	-12.7	
1230	-	48.58	7.19	581	154	2.10	11.02	-14.6	
1235	-	48.58	7.20	584	137	2.50	11.55	-11.6	
1240	-	48.58	7.14	588	114	2.59	11.42	-4.2	
1245	-	48.58	7.18	594	97	2.34	11.20	-5.1	
1250	-	48.58	7.09	599	89	2.02	11.12	-5.1	
1255	-	48.58	7.12	601	80	1.93	11.35	-5.9	
1300	-	48.58	7.15	609	72	1.89	11.24	-6.4	
1305	-	48.58	7.15	616	69	1.82	11.46	-8.9	0.22
Final:									

**SAMPLE COLLECTION**

Date: 10.27.08 Time: 1310 AM/PM Method: 2" BLADDER

Appearance of Sample: CLEAR

Actual sample flow rate: 175 ml/min or  
L/min

SAMPLE BOTTLE(S) COLLECTED: VOC's, NA

**SAMPLING PERSONNEL**

Name: JOHN YANICHULA

Company: EARTH TECH AECOM

CLIENT: Chrysler  
LOCATION: Rose Township  
PROJECT #: 106686.04

ENTER WELL LOCATION:

PW-9

**INSPECTION**

Label on well?	<input checked="" type="checkbox"/> YES	NO	Is cap locked?	YES	<input type="checkbox"/> NO
Is reference mark visible?	YES	<input checked="" type="checkbox"/> NO	Standing water present?	YES	<input type="checkbox"/> NO
Condition of well:	OK.		Any indication of surface runoff in well?	YES	<input type="checkbox"/> NO
Weather:	PARTLY CLOUDY, BREEZY		Air Temperature:	44°F	

Notes: SAMPLE ID #: PW9-102708-JY and PW9R-102708-JY

**STATIC WATER LEVEL JUST PRIOR TO PURGING**

Date: 10.27.08 Time: 1345 AM/PM

Depth to Water:	42.99	Measured with:	ELECTRONIC TAPE	CHALK & STEEL TAPE
Length of Well:	100.00	Decontamination:	PRE STEAM CLEANED	DI WATER OTHER

**WELL PURGING**

Date: 10.27.08	Begin Time: 1400 AM/PM	Purging Equipment: 2" BLADDER
	End Time: _____ AM/PM	Decontamination: PRE STEAM CLEANED <input checked="" type="checkbox"/> DI WATER OTHER

**CALCULATION OF 3 CASING VOLUMES**

ft	Length of well	Yield: <input checked="" type="checkbox"/> HIGH LOW
ft	- depth to water (before purge start)	If low, recovery time: _____
ft	= length of water column	
	x conversion factor (2" well) 0.49	Actual volume purged: _____ gallons
Gallons	= 3 casing volumes	Actual purge flow rate: 215 ml/min or L/min

Notes:  $S = 0.6 \text{ mg/L}, Mn = 0.3 \text{ mg/L}$

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
start: 1425	-	42.99	7.16	584	3	6.12	10.78	78.8	
1430	-	42.99	7.17	583	3	5.63	10.72	75.8	
1435	-	42.99	7.18	582	3	4.74	10.49	72.6	
1440	-	42.99	7.20	582	2	4.28	10.31	63.3	
1445	-	42.99	7.21	581	2	4.18	10.32	39.0	
1450	-	42.99	7.24	581	2	4.03	10.37	8.9	
1455	-	42.99	7.28	581	2	3.99	10.35	-28.2	
1500	-	42.99	7.31	582	2	3.96	10.81	-70.1	
1505	-	42.99	7.34	584	3	4.02	10.90	-75.3	
1510	-	42.99	7.37	583	2	4.01	10.55	-72.8	0.25

Final:

**SAMPLE COLLECTION**

Date: 10.27.08 Time: 1315 AM/PM Method: 2" BLADDER

Appearance of Sample: CLEAR Actual sample flow rate: 215 ml/min or L/min

SAMPLE BOTTLE(S) COLLECTED: VOC's, NA

**SAMPLING PERSONNEL**

Name: JOHN YANCHULA

Company: EARTH TECH AGC

CLIENT: Chrysler

LOCATION: Rose Township

PROJECT #: 106686.04

ENTER WELL LOCATION:

MW 102 D

## INSPECTION

Label on well?

YES

NO

Is cap locked?

YES

NO

Is reference mark visible?

YES

NO

Standing water present?

YES

NO

Condition of well:

Good

Any indication of surface runoff in well?

YES

NO

Weather:

Cloudy

Air Temperature:

YES

NO

Notes:

MW 102 D-102808-AM

## STATIC WATER LEVEL JUST PRIOR TO PURGING

Date: 10/28/08 Time: 8:10 AM/PM

Depth to Water: 15.95

Measured with:

ELECTRONIC TAPE

Length of Well: 116.5

Decontamination:

PRE STEAM CLEANED

CHALK &amp; STEEL TAPE

DI WATER

OTHER

## WELL PURGING

Date: 10/28/08

Begin Time: 8:25 AM/PM

End Time: \_\_\_\_\_ AM/PM

Purging Equipment: Peristaltic

Decontamination: PRE STEAM CLEANED DI WATER OTHER

## CALCULATION OF 3 CASING VOLUMES

ft Length of well

Yield: HIGH LOW

ft - depth to water (before purge start)

If low, recovery time: \_\_\_\_\_

ft = length of water column

Actual volume purged: 3.7 gallons

x conversion factor (2" well) 0.49

Actual purge flow rate: 200 ml/min or

Gallons = 3 casing volumes

L/min

Notes: S = 0.0 mg/L Pe = 0.0 mg/L Mn = 0.1 mg/L

Time	Volume (gallons)	Depth to Water (feet)	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start:	0.0	<0.33'	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 5°	+/- 10 mV	
8:35	1.0	16.45	8.19	86	1.65	1.39	9.65	-78	
8:40	1.6	16.52	8.21	85	1.38	0.93	9.85	-85	
8:45	2.0	16.45	8.21	84	1.35	1.14	9.86	-86	
8:50	2.4	16.45	8.21	89	1.33	0.90	9.88	-83	
8:55	2.8	16.45	8.22	85	0.95	0.82	9.87	-79	
9:00	3.2	16.45	8.22	84	0.92	0.80	9.81	-85	
Final:									

## SAMPLE COLLECTION

Date: 10/28/08

Time: 9:10 AM/PM

Method: Peristaltic

Appearance of Sample:

Clear

Actual sample flow rate:

200 ml/min or

L/min

SAMPLE BOTTLE(S) COLLECTED:

VOC, NA

## SAMPLING PERSONNEL

Name: Avtar Mehta

Company: AEMC

CLIENT: Chrysler  
LOCATION: Rose Township  
PROJECT #: 106686.04

Page 1

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ENTER WELL LOCATION: GW5D

**INSPECTION**

Label on well? Needs to be remarked  YES

NO

Is cap locked?

YES

NO

Is reference mark visible?

YES

NO

Standing water present?

YES

NO

Condition of well:

Okay - needs paint. Any indication of surface runoff in well?

YES

NO

Weather:

Protective Clothing (Conc/Sand)

Air temperature:

YES

NO

Notes:

GW5D-102808-AM \* GWSDMS/MSD-102808-AM

**STATIC WATER LEVEL JUST PRIOR TO PURGING**

Date: 10/28/08 Time: 9:45 AM

Depth to Water: 1.69

Measured with:

ELECTRONIC TAPE

Length of Well: 95.5

Decontamination:

PRE STEAM CLEANED

CHALK & STEEL TAPE

IN WATER

OTHER

**WELL PURGING**

Date: 10/28/08

Begin Time: 09:45 AM/PM

Purging Equipment:

Pervitaflo

End Time: \_\_\_\_\_ AM/PM

Decontamination:

PRE STEAM CLEANED

IN WATER OTHER

**CALCULATION OF 3 CASING VOLUMES**

ft Length of well

Yield: HIGH LOW

ft - depth to water (before purge start)

If low, recovery time: \_\_\_\_\_

ft = length of water column

Actual volume purged: \_\_\_\_\_ gallons

Gallons x conversion factor (2" well) 0.49

Actual purge flow rate: \_\_\_\_\_ ml/min or

= 3 casing volumes

L/min

Notes:

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start:									
10:30	2.5	12.65	8.17	807	68	14.41	5.18	-23	
10:35	2.6	12.66	8.21	807	75	14.27	6.01	-10	
10:40	2.7	Holding? pump issues -		-	-	-	Re-entered new turbidity.		
12:05	-	13.67	7.83	774	59	2.96	6.76	-82	
12:10	-	13.65	7.85	790	48	2.50	6.79	-98	
12:15	-	13.65	7.86	793	85	1.75	6.70	-100	
12:20	-	13.66	7.86	795	75	1.14	6.69	-99	
12:25	-	13.57	7.86	801	76	0.92	6.65	-103	
Final:									

**SAMPLE COLLECTION**

Date: 10/28/08

Time: AM/PM

Method: Pervitaflo

Appearance of Sample:

Slight浑浊  
(V.Slightly cloudy)

Actual sample flow rate:

50-100 ml/min or  
L/min

SAMPLE BOTTLE(S) COLLECTED:

VOC NA

**SAMPLING PERSONNEL**

Name:

Antony Morris

Company:

AEMG

CLIENT: Chrysler  
 LOCATION: Rose Township  
 PROJECT #: 106686.04

## ENTER WELL LOCATION: G106D6

## INSPECTION

Label on well?	YES	NO	Is cap locked?	YES	NO	
Is reference mark visible?	YES	NO	Standing water present?	YES	NO	
Condition of well:				Any indication of surface runoff in well?	YES	NO
Weather:				Air Temperature:		

Notes:

No outside flow, very slow recharge

## STATIC WATER LEVEL JUST PRIOR TO PURGING

Date: Time: AM/PM

Depth to Water:	Measured with:	ELECTRONIC TAPE	CHALK & STEEL TAPE
Length of Well:	Decontamination:	PRE STEAM CLEANED	DI WATER OTHER

## WELL PURGING

Date: 10/28/08	Begin Time: 1245	AM/PM	Purging Equipment: Peristaltic
	End Time: 1245	AM/PM	Decontamination: PRE STEAM CLEANED DI WATER OTHER

## CALCULATION OF 3 CASING VOLUMES

ft	Length of well	Yield:	HIGH	LOW
ft	- depth to water (before purge start)	If low, recovery time:		
ft	= length of water column	Actual volume purged:	4.5	gallons
	x conversion factor (2" well) 0.49	Actual purge flow rate:	50-100	ml/min or L/min
Gallons	= 3 casing volumes			

Notes:  $S = 0.39 \text{ mg/L}$   $Fe = 0.46 \text{ mg/L}$   $Mn = 0.6 \text{ mg/L}$

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
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Start:

1230	25.67	7.86	800	78	0.87	6.62	-104
1235	28.75	7.86	803	75	0.76	6.57	-108
1240	29.82	7.87	808	74	0.69	6.75	-108
1245	32.31	7.87	801	78	0.71	6.87	-102

Final:

## SAMPLE COLLECTION

Date: 10/28/08 Time: 1255 AM/PM Method: Peristaltic

Appearance of Sample: Slightly turbid Actual sample flow rate: 50-100 ml/min or L/min  
 (V. slight cloudiness)

SAMPLE BOTTLE(S) COLLECTED: VOCs, NA

## SAMPLING PERSONNEL

Name: Aviay Mani

Company: AEMG

CLIENT: Chrysler

LOCATION: Rose Township

PROJECT #: 106686.04

ENTER WELL LOCATION:

RW1-5 \$

## INSPECTION

Label on well?

 YES  
 YES

NO

Is cap locked?

YES

 NO  
 NO

Is reference mark visible?

Standing water present?

YES

Condition of well:

OK

NO

Any indication of surface runoff in well?

YES

Weather:

SUNNY, BREEZY

Air Temperature:

50°F

Notes:

SAMPLE ID: RW5\$-102108-JY AND RW5\$R-102108-JY

## STATIC WATER LEVEL JUST PRIOR TO PURGING

Date: 10.21.08

Time: 1545 AM/PM

Depth to Water:

38.24

Measured with:

ELECTRONIC TAPE

CHALK &amp; STEEL TAPE

Length of Well:

DI WATER

OTHER

Decontamination:

PRE STEAM CLEANED

## WELL PURGING

Date: 10.21.08

Begin Time: 1550

AM/PM

Purging Equipment:

2" BLADDER

End Time: 17

AM/PM

Decontamination:

PRE STEAM CLEANED

DI WATER

OTHER

## CALCULATION OF 3 CASING VOLUMES

ft Length of well

 HIGH    LOW

ft - depth to water (before purge start)

If low, recovery time:

ft = length of water column

Actual volume purged: \_\_\_\_\_ gallons

x conversion factor (2" well) 0.49

Actual purge flow rate: \_\_\_\_\_ ml/min or

Gallons = 3 casing volumes

180 U/min

Notes:

$$S = 0.024 \text{ luy/l} \quad 1' = 2.54 \times 2 = 5.04 \text{ m} \quad 1 \text{ min} = 0.3 \text{ m}^3/\text{l}$$

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start: 16.25	+6.25	39.26	7.59	628	30	2.50	12.00	38.0	
16.30	-	39.26	7.61	629	12	2.65	12.02	6.4	
16.35	-	39.26	7.12	630	9	2.62	11.92	17.3	
16.40	-	39.26	7.19	630	9	2.61	11.92	16.2	
16.45	-	39.26	7.22	630	8	2.60	11.93	10.5	
16.50	-	39.26	7.25	631	6	2.60	11.94	8.4	
Final:									

## SAMPLE COLLECTION

Date: 10.21.08

Time: 1655 AM/PM

Method: 2" BLADDER

Appearance of Sample:

CLEAR

Actual sample flow rate: 180

ml/min or

L/min

SAMPLE BOTTLE(S) COLLECTED:

VOC's, NA

## SAMPLING PERSONNEL

Name: John ANCUTULA

Company: EARTH TECH AECOM

CLIENT: Chrysler

LOCATION: Rose Township

PROJECT #: 106686.04

ENTER WELL LOCATION:

GW 22 I

## INSPECTION

Label on well?

 YES

NO

Is reference mark visible?

 YES

NO

Condition of well:

Good

Weather:

Partly cloudy, 48°

Notes:

GW 22 I-102008-AM

## STATIC WATER LEVEL JUST PRIOR TO PURGING

Date: 10/21

Time: 9:00 AM/PM

Depth to Water:

19.33

Measured with:

ELECTRONIC TAPE

Length of Well:

91.00'

Decontamination:

PRE STEAM CLEANED

CHALK &amp; STEEL TAPE

DI WATER

OTHER

## WELL PURGING

Date: 10/21/08

Begin Time: 9:05 AM/PM

End Time: 10:00 AM/PM

Purging Equipment:

Peristaltic

Decontamination:

PRE STEAM CLEANED

DI WATER

OTHER

## CALCULATION OF 3 CASING VOLUMES

ft Length of well

ft - depth to water (before purge start)

ft = length of water column

x conversion factor (2" well) 0.49

Gallons = 3 casing volumes

Yield:

HIGH LOW

If low, recovery time:

Actual volume purged:

gallons

Actual purge flow rate:

ml/min or

Notes:

$$S = 0.06 \text{ gal/L} \quad 0.8 \text{ my/L}$$

L/min

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start:									
9:10	Meter reading 19.40	1.2.5	9.78	0.559	10.2	10.1	10.41	-79.7	
	properly called	Geotech.	Brought water to room temp or less						
9:40	2 gal	19.38	9.78	0.556	9.5	2.26	10.01	-95.7	
9:45		19.36	11.45	0.555	8.6	1.01	10.15	-122.7	
10:00	3 gal	19.36		0.555	8.2	0.98	10.15	-124	
PH still not working properly									

Final:

## SAMPLE COLLECTION

Date: 10/24/08

Time: 10:15 AM/PM

Method: Peristaltic

Appearance of Sample:

Clear

Actual sample flow rate: 150 ml/min or

L/min

SAMPLE BOTTLE(S) COLLECTED:

VOC, NA

## SAMPLING PERSONNEL

Name: AVTA R MAVJ

Company: AEMG

CLIENT: Chrysler

LOCATION: Rose Township

PROJECT #: 106686.04

ENTER WELL LOCATION:

GW 22 S

## INSPECTION

Label on well?

NO

Is reference mark visible?

NO

Condition of well:

Good

Is cap locked?

NO

Weather:

Sunny, 55°F

Standing water present?

NO

Notes:

Any indication of surface runoff in well?

NO

Air Temperature:

## STATIC WATER LEVEL JUST PRIOR TO PURGING

Date: 10/21/08

Time: AM/PM

Depth to Water:

22-32'

Measured with:

ELECTRONIC TAPE

Length of Well:

57.0'

Decontamination:

PRE STEAM CLEANED

DI WATER

OTHER

## WELL PURGING

Date: 10/21/08

Begin Time: 11:30 AM/PM

End Time: 12:15 AM/PM

Purging Equipment: Peristaltic

Decontamination: PRE STEAM CLEANED DI WATER OTHER

## CALCULATION OF 3 CASING VOLUMES

ft Length of well

ft - depth to water (before purge start)

ft = length of water column

x conversion factor (2" well) 0.49

Gallons = 3 casing volumes

Yield: HIGH LOW

If low, recovery time:

Actual volume purged: 2.5 gallons

Actual purge flow rate: 200 ml/min or

Notes:

$$S = 0.0 \text{ mg/L} \quad P_e = 1.58 \text{ mg/L} \quad M_n = 0.7 \text{ mg/L}$$

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU) +/- 0.1	Conductivity (umhos/cm) +/- 3%	Turbidity (NTU) +/- 10%	D.O. (mg/L) +/- 10%	Temp (°C) +/- 5°	ORP +/- 10 mV	Ferrous Iron (mg/L)
Start:									
10:45	1.08	22-9	5.87	0.553	3.5	1.36	10.43	-146.2	
11:55	1.50	22.95	6.06	0.551	2.17	1.23	10.34	-144.1	
12:05	~2.0	22.95	6.07	0.549	1.80	1.07	10.51	-152.8	
12:10	~2.3	22.95	6.07	0.549	1.74	0.93	10.69	-158.8	
12:15	2.5	22.95	6.06	0.548		0.93	10.90	-167	
OH reading still not working properly after calibration.									
Final:									

## SAMPLE COLLECTION

Date: 10/21/08

Time: 12:15 AM/PM

Method: Peristaltic

Appearance of Sample:

Clear

Actual sample flow rate: 200 ml/min or

L/min

SAMPLE BOTTLE(S) COLLECTED:

VOC, NA

## SAMPLING PERSONNEL

Name: AVTAR MAVI

Company: AEMC



CLIENT: Chrysler  
LOCATION: Rose Township  
PROJECT #: 106686.04

ENTER WELL LOCATION:

GW 237

**INSPECTION**

Label on well?	<input checked="" type="checkbox"/> YES	NO	Is cap locked?	<input checked="" type="checkbox"/> YES	NO
Is reference mark visible?	<input checked="" type="checkbox"/> YES	NO	Standing water present?	<input checked="" type="checkbox"/> YES	NO
Condition of well:	<i>General</i>		Any indication of surface runoff in well?	<input checked="" type="checkbox"/> YES	NO
Weather:	<i>Slightly Cloudy</i>		Air Temperature:	60° F	

Notes:

Sample ID: GW 237 - 10 2008 - AM

**STATIC WATER LEVEL JUST PRIOR TO PURGING**

Date: \_\_\_\_\_ Time: \_\_\_\_\_ AM/PM

Depth to Water: 7.05  
Length of Well: 100.0

Measured with:	<input checked="" type="checkbox"/> ELECTRONIC TAPE	CHALK & STEEL TAPE	
Decontamination:	<input checked="" type="checkbox"/> PRE STEAM CLEANED	<input checked="" type="checkbox"/> DI WATER	OTHER

**WELL PURGING**

Date: 10/21/08 Begin Time: 1:50 AM/PM End Time: 2:20 AM/PM Purging Equipment: Cerestallic pump  
Decontamination:  PRE STEAM CLEANED  DI WATER OTHER

**CALCULATION OF 3 CASING VOLUMES**

ft	Length of well
ft	- depth to water (before purge start)
ft	= length of water column
	x conversion factor (2" well) 0.49
Gallons	= 3 casing volumes

Notes:  $S = 0.13 \text{ mg/L}$   $P_e = 0.39 \text{ mg/L}$ ,  $M_A = 1.4 \text{ mg/L}$

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU) +/- 0.1	Conductivity (umhos/cm) +/- 3%	Turbidity (NTU) +/- 10%	D.O. (mg/L) +/- 10%	Temp (°C) +/- 5°	ORP	Ferrous Iron (mg/L)
Start:									
1:50pm	0.27.05	6.01	0.571	2.07	4.56	11.65	-172		
1:55pm	0.5	7.10	6.44	0.560	1.47	1.78	11.37	-185	
2:00pm	0.9	7.10	6.52	0.558	0.99	1.19	11.68	-214	
2:05pm	1.4	7.10	6.71	0.564	0.93	1.01	10.96	-221	
2:10pm	1.8	7.10	6.88	0.561	0.87	0.94	10.68	-223	
2:15pm	2.1	7.10	6.91	0.563	0.86	0.80	10.00	-224	
2:20pm	2.5	7.1	6.95	0.566	0.85	0.74	11.67	-223	
Final:									

**SAMPLE COLLECTION**

Date: 10/21/08 Time: 2:20 AM/PM Method: Cerestallic

Appearance of Sample: clear

Actual sample flow rate: 150 ml/min or L/min

SAMPLE BOTTLE(S) COLLECTED: VOC, NA

**SAMPLING PERSONNEL**

Name: AVTAR MAVI

Company: AEMG

CLIENT: Chrysler

LOCATION: Rose Township

PROJECT #: 106686.04

ENTER WELL LOCATION:

GW 23 S

**INSPECTION**

Label on well?

YES

NO

Is cap locked?

YES

NO

Is reference mark visible?

YES

NO

Standing water present?

YES

NO

Condition of well:

Good

Any indication of surface runoff in well?

YES

NO

Weather:

Sunny 60° F

Air Temperature:

60° F

Notes:

Sample ID = GW 23 S - 102008-AM

**STATIC WATER LEVEL JUST PRIOR TO PURGING**

Date: 10/21/08 Time: 2:35 AM/PM

Depth to Water:

6.46

Measured with:

ELECTRONIC TAPE

Length of Well:

46.0'

Decontamination:

PRE STEAM CLEANED

CHALK &amp; STEEL TAPE

DI WATER

OTHER

**WELL PURGING**

Date: 10/21/08

Begin Time: 2:40 AM/PM

Purging Equipment:

Peristaltic

End Time: \_\_\_\_\_ AM/PM

Decontamination:

PRE STEAM CLEANED

DI WATER

OTHER

**CALCULATION OF 3 CASING VOLUMES**

ft	Length of well
ft	- depth to water (before purge start)
ft	= length of water column
	x conversion factor (2" well) 0.49
Gallons	= 3 casing volumes

Yield: HIGH LOW

If low, recovery time: \_\_\_\_\_

Actual volume purged: 200 gallons

Actual purge flow rate: 200 ml/min or

Notes:

 $S = 0.0 \text{ my/l}$ ,  $F_e = 2.07 \text{ my/l}$ ,  $M_n = 0.7 \text{ my/l}$ 

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start:									
2:40	6.50	7.10	0.559	1.02	0.50	10.92	-198		
2:45	6.50	7.21	0.559	0.98	0.48	10.85	-195		
2:50	6.49	7.48	0.559	0.65	0.43	10.73	-185		
2:55	2.09	6.49	7.54	0.559	0.62	0.44	10.65	185	
Final:									

**SAMPLE COLLECTION**

Date: 10/21/08

Time: 3 AM/PM

Method: Peristaltic

Appearance of Sample:

Clear

Actual sample flow rate: 150 ml/min or  
L/min

SAMPLE BOTTLE(S) COLLECTED:

VOC, NA

**SAMPLING PERSONNEL**

Name:

Alvaro Menz

Company:

AEMG



CLIENT: Chrysler

LOCATION: Rose Township

PROJECT #: 106686.04

ENTER WELL LOCATION: SW-37

## INSPECTION

Label on well?

YES

NO

Is cap locked?

YES

NO

Is reference mark visible?

YES

NO

Standing water present?

YES

NO

Condition of well:

O.K.

Any indication of surface runoff in well?

YES

NO

Weather:

CLEAR, CALM

Air Temperature:

45° F

Notes:

SAMPLE ID: GWE3I-102208-JY AND EB3-102208-JY

## STATIC WATER LEVEL JUST PRIOR TO PURGING

Date: \_\_\_\_\_ Time: AM/PM

Depth to Water:

ARTESIAN

Measured with:

ELECTRONIC TAPE

CHALK &amp; STEEL TAPE

Length of Well:

\_\_\_\_\_

Decontamination:

PRE STEAM CLEANED

DI WATER

OTHER

## WELL PURGING

Date: 10.22.08 Begin Time: 0835 AM/PM Purging Equipment: ARTESIAN

End Time: \_\_\_\_\_ AM/PM

Decontamination: PRE STEAM CLEANED

DI WATER OTHER

## CALCULATION OF 3 CASING VOLUMES

ft Length of well

Yield: HIGH LOW

ft - depth to water (before purge start)

If low, recovery time: \_\_\_\_\_

ft = length of water column

Actual volume purged: \_\_\_\_\_ gallons

x conversion factor (2" well) 0.49

Actual purge flow rate: \_\_\_\_\_ ml/min or

Gallons = 3 casing volumes

L/min

Notes: S = 0.00 mg/L, Mn = 0.0 mg/L

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start: 0830	-	-	8.19	619	5	1.13	9.75	-131.5	
0835	-	-	8.24	619	5	0.82	9.72	-134.6	
0900	-	-	8.18	619	5	0.59	9.72	-130.0	
0905	-	-	8.15	620	4	0.52	9.76	-132.2	
0910	-	-	8.18	620	4	0.46	9.75	-129.5	
0915	-	-	8.29	620	4	0.38	9.78	-126.7	
0920	-	-	8.30	620	4	0.31	9.77	-122.2	
0925	-	-	8.27	620	4	0.27	9.77	-114.4	
0930	-	-	8.25	620	4	0.23	9.76	-102.3	
0935	-	-	8.21	620	4	0.19	9.78	-91.1	1.60
Final:									

## SAMPLE COLLECTION

Date: 10.22.08

Time: 0940 AM/PM

Method: ARTESIAN

Appearance of Sample: CLEAR

Actual sample flow rate: \_\_\_\_\_ ml/min or  
L/min

SAMPLE BOTTLE(S) COLLECTED: VOC's, NA

## SAMPLING PERSONNEL

Name: JONATHAN YANGUANA / ALISON SCHOFF

Company: EARTH TECH AECOM

CLIENT: Chrysler  
LOCATION: Rose Township  
PROJECT #: 106686.04

ENTER WELL LOCATION: GW-6D

INSPECTION

Label on well?	<input checked="" type="checkbox"/> YES	NO	Is cap locked?	YES	<input checked="" type="checkbox"/> NO
Is reference mark visible?	<input checked="" type="checkbox"/> YES	NO	Standing water present?	YES	<input checked="" type="checkbox"/> NO
Condition of well:	OK		Any indication of surface runoff in well?	YES	<input checked="" type="checkbox"/> NO
Weather:	Clear, calm, 51°F		Air Temperature:	51°F	

Notes: Sample ID: GW6D-102208-JY

STATIC WATER LEVEL JUST PRIOR TO PURGING

Date: \_\_\_\_\_ Time: AM/PM

Depth to Water:	ARTESIAN	Measured with:	ELECTRONIC TAPE	CHALK & STEEL TAPE
Length of Well:		Decontamination:	PRE STEAM CLEANED	DI WATER OTHER

WELL PURGING

Date: 10/22/08	Begin Time: 1015	AM/PM	Purging Equipment: ARTESIAN
	End Time: _____	AM/PM	Decontamination: PRE STEAM CLEANED DI WATER OTHER

CALCULATION OF 3 CASING VOLUMES

ft	Length of well	Yield: <input checked="" type="checkbox"/> HIGH <input type="checkbox"/> LOW
ft	- depth to water (before purge start)	If low, recovery time: _____
ft	= length of water column	
	x conversion factor (2" well) 0.49	Actual volume purged: _____ gallons
Gallons	= 3 casing volumes	Actual purge flow rate: _____ ml/min or L/min
Notes: S = 0.0 mg/L, m <sub>A</sub> = 0.0 mg/L		

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
start: 1035	-	-	8.31	540	2	0.34	9.78	-130.1	
1040	-	-	8.35	540	2	0.30	9.77	-128.4	
1045	-	-	8.37	541	2	0.39	9.77	-123.2	
1050	-	-	8.40	540	2	0.10	9.77	-119.1	
1055	-	-	8.40	540	2	0.20	9.77	-112.4	
1100	-	-	8.41	541	2	0.19	9.77	-107.3	
1105			8.43	541	2	0.18	9.78	-101.8	1.41
Final:									

SAMPLE COLLECTION

Date: 10/22/08	Time: 1110 AM/PM	Method: ARTESIAN
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Appearance of Sample: CLEAR Actual sample flow rate: \_\_\_\_\_ ml/min or L/min

SAMPLE BOTTLE(S) COLLECTED: VOC's, MA

SAMPLING PERSONNEL

Name: John Yanchula / Alison Schoeff

Company: Earth-Tech ATCom

CLIENT: Chrysler  
LOCATION: Rose Township  
PROJECT #: 106686.04

ENTER WELL LOCATION: GW5I

**INSPECTION**

Label on well?	<input checked="" type="checkbox"/> YES	NO	Is cap locked?	YES	<input checked="" type="checkbox"/> NO
Is reference mark visible?	YES	<input checked="" type="checkbox"/> NO	Standing water present?	YES	<input checked="" type="checkbox"/> NO
Condition of well:	POOR		Any indication of surface runoff in well?	YES	<input checked="" type="checkbox"/> NO
Weather:	CLEAR, COLD		Air Temperature:	54°F	

Notes: Sample ID: GW5I - 102208 - JY AND FB3 - 102208 - JY

**STATIC WATER LEVEL JUST PRIOR TO PURGING**

Date: ARTESIAN Time: AM/PM

Depth to Water:	Measured with:	ELECTRONIC TAPE	CHALK & STEEL TAPE
Length of Well:	Decontamination:	PRE STEAM CLEANED	DI WATER OTHER

**WELL PURGING**

Date: 10.22.08	Begin Time: 1130 AM/PM	Purging Equipment: ARTESIAN
	End Time: _____ AM/PM	Decontamination: PRE STEAM CLEANED DI WATER OTHER

**CALCULATION OF 3 CASING VOLUMES**

ft	Length of well	Yield: <input checked="" type="checkbox"/> HIGH <input type="checkbox"/> LOW
ft	- depth to water (before purge start)	If low, recovery time: _____
ft	= length of water column	
	x conversion factor (2" well) 0.49	Actual volume purged: _____ gallons
Gallons	= 3 casing volumes	Actual purge flow rate: _____ ml/min or l/min

Notes:  $S = 0.02 \text{ mg/L}$ ,  $Mn = 0.2 \text{ mg/L}$   $D = 0.8$

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start: 1145	-	-	8.22	615		2.03	9.99	-40.1	
1150	-	-	8.17	615		1.84	9.99	-69.2	
1155	-	-	8.34	615		1.66	10.02	-86.3	
1200	-	-	8.25	615		1.48	10.07	-93.0	
1205	-	-	8.25	615		1.36	10.09	-98.2	1.52
Final:									

**SAMPLE COLLECTION**

Date: 10.22.08 Time: 1210 AM/PM Method: ARTESIAN

Appearance of Sample: CLEAR Actual sample flow rate: \_\_\_\_\_ ml/min or  
l/min

SAMPLE BOTTLE(S) COLLECTED: YOL'S, NA

**SAMPLING PERSONNEL**

Name: Total Yanchura, Alison SCHAEFF Company: EARTH TECH RECOM

CLIENT: Chrysler  
LOCATION: Rose Township  
PROJECT #: 106686.04

ENTER WELL LOCATION:

GW-18

**INSPECTION**

Label on well?	<input checked="" type="checkbox"/> YES	NO	Is cap locked?	YES	<input type="checkbox"/> NO
Is reference mark visible?	<input checked="" type="checkbox"/> YES	NO	Standing water present?	YES	<input type="checkbox"/> NO
Condition of well:	OK		Any indication of surface runoff in well?	YES	<input type="checkbox"/> NO
Weather:	55°F, CLEAR, BREEZY		Air Temperature:		
Notes:	SAMPLE ID: GW18-102208-JY				

**STATIC WATER LEVEL JUST PRIOR TO PURGING**

Date: 10/22/08 Time: AM/PM

Depth to Water:	Measured with:	ELECTRONIC TAPE	CHALK & STEEL TAPE
Length of Well:	Decontamination:	PRE STEAM CLEANED	DI WATER OTHER

**WELL PURGING**

Date: 10.22.08	Begin Time: 1210 AM/PM	Purging Equipment: ARTESIAN
	End Time: 1300 AM/PM	Decontamination: PRE STEAM CLEANED DI WATER OTHER

**CALCULATION OF 3 CASING VOLUMES**

ft	Length of well	Yield: <input checked="" type="checkbox"/> HIGH <input type="checkbox"/> LOW
ft	- depth to water (before purge start)	If low, recovery time: _____
ft	= length of water column	
	x conversion factor (2" well) 0.49	Actual volume purged: _____ gallons
Gallons	= 3 casing volumes	ml/min or
Notes:	S = 0.0 mg/L M <sub>n</sub> = 0.3 mg/L	L/min

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start: 1235	-	-	8.28	602	9	0.46	9.75	-106.3	
1240	-	-	8.82	602	7	0.30	9.75	-124.0	
1245	-	-	8.89	602	7	0.25	9.76	-125.9	
1250	-	-	8.93	602	5	0.25	9.74	-128.3	
1255	-	-	8.99	602	5	0.24	9.75	-129.0	1.41
Final:									

**SAMPLE COLLECTION**

Date: 10.22.08 Time: 1300 AM/PM Method: ARTESIAN

Appearance of Sample: CLEAR Actual sample flow rate: ml/min or L/min

SAMPLE BOTTLE(S) COLLECTED: VOC's, NA

**SAMPLING PERSONNEL**

Name: John Yancitua / Alison Schaeff

Company: EARTH TEST AG.COM

CLIENT: Chrysler

LOCATION: Rose Township

PROJECT #: 106686.04

ENTER WELL LOCATION:

MW-107 I

## INSPECTION

Label on well?

YES

NO

Is reference mark visible?

YES

NO

Condition of well:

Good

Weather:

Clear, Calm

Notes:

Is cap locked?

YES

NO

Standing water present?

YES

NO

Any indication of surface runoff in well?

YES

NO

Air Temperature:

## STATIC WATER LEVEL JUST PRIOR TO PURGING

Date: \_\_\_\_\_ Time: \_\_\_\_\_ AM/PM

Depth to Water: ARTESIAN

Measured with:

Length of Well: \_\_\_\_\_

Decontamination:

ELECTRONIC TAPE

CHALK &amp; STEEL TAPE

PRE STEAM CLEANED

DI WATER

OTHER

## WELL PURGING

Date: 10/22/08Begin Time: 1520 AM/PMPurging Equipment: ARTESIANEnd Time: 1610 AM/PM

Decontamination: PRE STEAM CLEANED DI WATER OTHER

## CALCULATION OF 3 CASING VOLUMES

ft Length of well

Yield: HIGH LOW

ft - depth to water (before purge start)

If low, recovery time: \_\_\_\_\_

ft = length of water column

Actual volume purged: \_\_\_\_\_ gallons

x conversion factor (2" well) 0.49

Actual purge flow rate: \_\_\_\_\_ ml/min or

Gallons = 3 casing volumes

L/min

Notes:  $S = 0.0 \text{ m/L}$   $M_n = 0.0 \text{ m/L}$ 

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start: <u>1540</u>	-	-	<u>8.45</u>	<u>580</u>	<u>41</u>	<u>1.26</u>	<u>9.45</u>	<u>-133.5</u>	
<u>1545</u>	-	-	<u>8.42</u>	<u>580</u>	<u>37</u>	<u>0.83</u>	<u>9.43</u>	<u>-131.0</u>	
<u>1550</u>	-	-	<u>8.41</u>	<u>580</u>	<u>20</u>	<u>0.69</u>	<u>9.41</u>	<u>-142.3</u>	
<u>1555</u>	-	-	<u>8.38</u>	<u>579</u>	<u>11</u>	<u>0.61</u>	<u>9.41</u>	<u>-137.8</u>	
<u>1600</u>	-	-	<u>8.37</u>	<u>579</u>	<u>7</u>	<u>0.51</u>	<u>9.42</u>	<u>-138.3</u>	
<u>1605</u>	-	-	<u>8.37</u>	<u>578</u>	<u>5</u>	<u>0.45</u>	<u>9.40</u>	<u>-139.5</u>	<u>1.98</u>
Final:									

## SAMPLE COLLECTION

Date: 10/22/08Time: 1610 AM/PM

Method: \_\_\_\_\_

Appearance of Sample: \_\_\_\_\_

Actual sample flow rate: \_\_\_\_\_ ml/min or  
L/min

SAMPLE BOTTLE(S) COLLECTED: \_\_\_\_\_

## SAMPLING PERSONNEL

Name: \_\_\_\_\_

Company: \_\_\_\_\_

CLIENT: Chrysler  
LOCATION: Rose Township

PROJECT #: 106686.04

ENTER WELL LOCATION:

GW 16

INSPECTION

Label on well?	YES	NO	Is cap locked?	YES	NO
Is reference mark visible?	YES	NO	Standing water present?	YES	NO
Condition of well:	<u>Clean</u>		Any indication of surface runoff in well?	YES	NO
Weather:	<u>Partly Cloudy</u>		Air Temperature:	<u>27°F</u>	

Notes:

GW 16-102008-AM & GW 16R-102008-AM

STATIC WATER LEVEL JUST PRIOR TO PURGING

Date: 10/22/08 Time: 8:30 AM/PM

Depth to Water: 14.7'  
Length of Well: 49.5

Measured with: ELECTRONIC TAPE  
Decontamination: PRE STEAM CLEANED CHALK & STEEL TAPE  
DI WATER OTHER

WELL PURGING

Date: <u>10/22/08</u>	Begin Time: <u>8:05</u> AM/PM	Purging Equipment: <u>Peristaltic pump</u>
	End Time: _____ AM/PM	Decontamination: <u>PRE STEAM CLEANED</u> <u>DI WATER</u> <u>OTHER</u>

CALCULATION OF 3 CASING VOLUMES

ft	Length of well
ft	- depth to water (before purge start)
ft	= length of water column
	x conversion factor (2" well) 0.49
Gallons	= 3 casing volumes

Yield:	HIGH	LOW
If low, recovery time:	_____	
Actual volume purged:	<u>3.0</u>	gallons
Actual purge flow rate:	<u>200</u>	ml/min or L/min

Notes:  $S = 0$   $1 - e^{-0.46 \text{mg/L}} = 0.5 \text{ mg/L}$

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start:									
8:10	1.1	14.5	7.61	0.515	2.67	1.9	9.76	70.2	
8:20	0.6	14.78	7.26	0.497	2.62	1.40	9.64	65.4	
8:30	1.2	14.78	7.79	0.495	1.98	1.01	9.59	65.1	
8:35	1.8	14.78	7.80	0.488	1.98	0.84	9.53	64.3	
8:35	2.3	14.78	7.79	0.492	2.08	0.79	9.28	-12.0	
8:45	2.8	14.76	7.67	0.493	2.09	0.88	9.15	-74.1	
8:50	3.0	14.76	7.64	0.487	2.09	0.99	9.36	-76.0	
Final:									

SAMPLE COLLECTION

Date: <u>10/22/08</u>	Time: <u>AM/PM</u>	Method: <u>Peristaltic</u>
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Appearance of Sample: Clean Actual sample flow rate: 150 ml/min or L/min

SAMPLE BOTTLE(S) COLLECTED: VOCs, NA

SAMPLING PERSONNEL

Name: Anton Manz

Company:

AEMG

CLIENT: Chrysler

LOCATION: Rose Township

PROJECT #: 106686.04

ENTER WELL LOCATION:

DNR 3

## INSPECTION

Label on well?	YES	NO	Is cap locked?	YES	NO
Is reference mark visible?	YES	NO	Standing water present?	YES	NO
Condition of well:	<u>Okay</u>		Any indication of surface runoff in well?	YES	NO
Weather:	<u>Sunny</u>		Air Temperature:	<u>30° F</u>	

Notes: Weak artesian well

DNR 3-102008-AM

## STATIC WATER LEVEL JUST PRIOR TO PURGING

Date: 10/22/08 Time: 10:40 AM/PM

Depth to Water: — Length of Well: —

Measured with: ELECTRONIC TAPE CHALK & STEEL TAPE  
Decontamination: PRE STEAM CLEANED DI WATER OTHER

## WELL PURGING

Date: 10/22/08	Begin Time: 10:40	AM/PM	Purging Equipment: Natural flow
	End Time: _____	AM/PM	Decontamination: PRE STEAM CLEANED DI WATER OTHER

## CALCULATION OF 3 CASING VOLUMES

ft	Length of well
ft	- depth to water (before purge start)
ft	= length of water column
	x conversion factor (2" well) 0.49
Gallons	= 3 casing volumes

Yield:	HIGH	LOW
If low, recovery time:	_____	
Actual volume purged:	<u>~ 5</u>	gallons
Actual purge flow rate:	<u>300</u>	ml/min or L/min

Notes:  $S = 0.0 \text{ mg/L}$ ,  $\text{Fe} = 1.6 \text{ mg/L}$ ,  $\text{Mn} = 0.2 \text{ mg/L}$ 

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start:									
10:45	—	7.98	0.509	3.61	3.35	10.21	-19		
10:50	—	7.98	0.514	3.41	1.51	10.30	-127		
10:55	—	7.91	0.519	3.02	1.22	10.06	-119		
11:00	—	7.75	0.530	3.58	1.05	10.04	-101		
11:05	—	7.63	0.534	3.64	1.01	9.89	-89		
11:10	—	7.51	0.518	3.57	0.93	9.84	-79		
11:15	—	7.46	0.539	2.27	1.12	9.81	-75		
11:20	—	7.44	0.539	2.31	1.23	9.78	-74		
11:25	—	7.44	0.539	1.92	1.17	9.78	-73		
Final: 11:30	7.43	0.539	1.90	1.15	9.79	-72			

## SAMPLE COLLECTION

Date: 10/22/08 Time: 11:35 AM/PM Method: \_\_\_\_\_

Appearance of Sample: CleanActual sample flow rate: 200 ml/min or L/minSAMPLE BOTTLE(S) COLLECTED: VOC, NA

## SAMPLING PERSONNEL

Name: AYTAZ MAVICompany: DEM G

CLIENT: Chrysler  
LOCATION: Rose Township  
PROJECT #: 106686.04

ENTER WELL LOCATION: GW-171

**INSPECTION**

Label on well?	<input checked="" type="checkbox"/> YES	NO	Is cap locked?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
Is reference mark visible?	<input checked="" type="checkbox"/> YES	NO	Standing water present?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
Condition of well:	POOR		Any indication of surface runoff in well?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
Weather:	Clear, calm, 53°F		Air Temperature:	53°F	
Notes:	Well riser broke below surface.				

**STATIC WATER LEVEL JUST PRIOR TO PURGING**

Date: 10/22/08 Time: AM/PM

Depth to Water:	ARTESIAN	Measured with:	ELECTRONIC TAPE	CHALK & STEEL TAPE
Length of Well:		Decontamination:	PRE STEAM CLEANED	DI WATER OTHER

**WELL PURGING**

Date: 10/22/08	Begin Time: 1300 AM/PM	Purging Equipment: ARTESIAN
	End Time: 1355 AM/PM	Decontamination: PRE STEAM CLEANED DI WATER OTHER

**CALCULATION OF 3 CASING VOLUMES**

ft	Length of well	Yield: <input checked="" type="checkbox"/> HIGH <input type="checkbox"/> LOW
ft	- depth to water (before purge start)	If low, recovery time: _____
ft	= length of water column	
	x conversion factor (2" well) 0.49	Actual volume purged: _____ gallons
Gallons	= 3 casing volumes	Actual purge flow rate: _____ ml/min or L/min
Notes:	$S = N/A \text{ mg/L} \quad M_n = 0.2 \text{ mg/L}$	

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start: 132.5	-	-	8.32	607	6	0.68	9.83	-117.2	
133.0	-	-	8.52	607	3	0.57	9.83	-106.2	
133.5	-	-	8.56	607	1	0.46	9.84	-129.2	
134.0	-	-	8.53	607	1	0.43	9.82	-127.7	
134.5	-	-	8.48	607	1	0.45	9.84	-128.7	
135.0	-	-	8.56	608	1	0.49	9.81	-132.6	1.6
Final:									

**SAMPLE COLLECTION**

Date: 10.22.08 Time: 1355 AM/PM Method: \_\_\_\_\_

Appearance of Sample: CLEAR Actual sample flow rate: \_\_\_\_\_ ml/min or L/min

SAMPLE BOTTLE(S) COLLECTED: 10C's, NA

**SAMPLING PERSONNEL**

Name: \_\_\_\_\_

Company: \_\_\_\_\_

CLIENT: Chrysler  
LOCATION: Rose Township  
PROJECT #: 106686.04

ENTER WELL LOCATION:

GW17D

**INSPECTION**

Label on well?  YES  NO  
Is reference mark visible?  YES  NO  
Condition of well: good  
Weather: Clear, calm  
Notes: Reference mark is now visible.

Is cap locked?  YES  NO  
Standing water present?  YES  NO  
Any indication of surface runoff in well?  YES  NO  
Air Temperature: 66°F

**STATIC WATER LEVEL JUST PRIOR TO PURGING**

Date: 10/22/08 Time: AM/PM

SAMPLE ID: GW17D-102208-JY  
(1505) GW17DR-102208-JY

Depth to Water: ARTESIAN  
Length of Well: \_\_\_\_\_

Measured with: ELECTRONIC TAPE CHALK & STEEL TAPE  
Decontamination: PRE STEAM CLEANED DI WATER OTHER

**WELL PURGING**

Date: 10/22/08 Begin Time: 1400 AM/PM Purging Equipment: ARTESIAN  
End Time: \_\_\_\_\_ AM/PM Decontamination: PRE STEAM CLEANED DI WATER OTHER

**CALCULATION OF 3 CASING VOLUMES**

ft	Length of well	Yield: <input checked="" type="checkbox"/> HIGH <input type="checkbox"/> LOW
ft	- depth to water (before purge start)	If low, recovery time: _____
ft	= length of water column	
	x conversion factor (2" well) 0.49	Actual volume purged: _____ gallons
Gallons	= 3 casing volumes	Actual purge flow rate: _____ ml/min or l/min
Notes: $S = 0 \text{ mg/L} \quad M_n = \text{mg/L} \quad F_2 = 2.16$		

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start: 1435	—	—	8.80	615	2	1.04	10.00	-118.8	
1440	—	—	8.74	614	2	0.60	10.05	-126.9	
1445	—	—	8.75	614	2	0.50	9.89	-134.0	
1450	—	—	8.78	615	2	0.44	9.86	-131.5	
1455	—	—	8.86	614	2	0.44	9.86	-133.5	2.16
Final:									

**SAMPLE COLLECTION**

Date: 10.22.08 Time: 1500 AM/PM

Method: ARTESIAN

Appearance of Sample: CLEAR

Actual sample flow rate: \_\_\_\_\_ ml/min or  
L/min

SAMPLE BOTTLE(S) COLLECTED: VOC's, NA

**SAMPLING PERSONNEL**

Name: Joyal Yancura / Alison Schutte Company: EARTH TECH AECOM

CLIENT: Chrysler  
LOCATION: Rose Township  
PROJECT #: 106686.04

ENTER WELL LOCATION: RW1

**INSPECTION**

Label on well?	<input checked="" type="checkbox"/> YES	NO	Is cap locked?	<input checked="" type="checkbox"/> YES	NO
Is reference mark visible?	<input checked="" type="checkbox"/> YES	NO	Standing water present?	<input checked="" type="checkbox"/> YES	NO
Condition of well:	OK			Any indication of surface runoff in well?	<input checked="" type="checkbox"/> YES
Weather:	Partly Cloudy 60°			Air Temperature:	<input checked="" type="checkbox"/> NO
Notes:	RWS 1 - 10/20/08 - AM				

**STATIC WATER LEVEL JUST PRIOR TO PURGING**

Date: 10/20/08 Time: 9:50 AM/PM

Depth to Water: 18.83  
Length of Well: 36.0

Measured with: ELECTRONIC TAPE CHALK & STEEL TAPE  
Decontamination: PRE STEAM CLEANED DI WATER OTHER

**WELL PURGING**

Date: 10/20/08	Begin Time: 10:15 AM/PM	Purging Equipment: Peristaltic pump
	End Time: _____	Decontamination: PRE STEAM CLEANED DI WATER OTHER

**CALCULATION OF 3 CASING VOLUMES**

36 ft	Length of well
18.83 ft	- depth to water (before purge start)
11.17 ft	= length of water column
5.47 ft	x conversion factor (2" well) 0.49
Gallons	= 3 casing volumes

Notes:  $S = 0.00 \text{ mg/l}$ ,  $Mn = 0.0 \text{ mg/l}$ ,  $Po = 0.08$

Yield: HIGH LOW

If low, recovery time: \_\_\_\_\_

Actual volume purged: 5 gallons

Actual purge flow rate: ml/min or L/min

Time	Volume (gallons)	Depth to Water (feet)	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start:									
10:15	0	19.98	7.63	0.589	3.24	16.3	11.20	95.7	
10:20	0.6	19.46	7.55	0.546	1.71	10.9	10.52	10.5	
10:25	1.0	19.50	7.49	0.529	1.15	9.9	10.41	-16.7	
10:30	1.5	19.28	7.47	0.522	0.90	9.9	10.41	-28.6	
10:35	2.0	19.26	7.47	0.523	0.85	11.5	10.33	-32.5	
10:40	2.4	19.26	7.46	0.521	0.81	11.7	10.30	-31.4	
10:45	3.0	19.26	7.45	0.522	0.85	12.6	10.78	-29	
10:50	3.5	19.26	7.44	0.520	0.70	10.8	10.30	-27.4	
10:55	4.2	19.26	7.44	0.519	0.73	9.9	10.21	-25.9	
Final: 11:05	5.6	19.26	7.44	0.517	0.71	8.9	10.17	-24.8	0.08 m

**SAMPLE COLLECTION**

Date: 10/20/08 Time: 11:10 AM/PM

Method: Peristaltic

Appearance of Sample: Clear

Actual sample flow rate: ~200 ml/min or L/min

SAMPLE BOTTLE(S) COLLECTED: VOC, NA

**SAMPLING PERSONNEL**

Name: Avtar Mann

Company: AEMG

CLIENT: Chrysler  
LOCATION: Rose Township  
PROJECT #: 106686.04

ENTER WELL LOCATION:

MW-103\$

**INSPECTION**

Label on well?	<input checked="" type="checkbox"/> YES	NO	Is cap locked?	YES	<input type="checkbox"/> NO
Is reference mark visible?	<input checked="" type="checkbox"/> YES	NO	Standing water present?	YES	<input type="checkbox"/> NO
Condition of well:	O.K.		Any indication of surface runoff in well?	YES	<input type="checkbox"/> NO
Weather:	60°F, overcast, breezy		Air Temperature:		
Notes:					

**STATIC WATER LEVEL JUST PRIOR TO PURGING**

Date: 10.20.08 Time: 1015 AM/PM

Depth to Water: 39.91  
Length of Well: 98.0

Measured with:  ELECTRONIC TAPE  CHALK & STEEL TAPE  
Decontamination: PRE STEAM CLEANED  DI WATER OTHER

**WELL PURGING**

Date: 10.20.08 Begin Time: 1020 AM/PM Purging Equipment: 2" BLADDER  
End Time: 1145 AM/PM Decontamination: PRE STEAM CLEANED  DI WATER OTHER

**CALCULATION OF 3 CASING VOLUMES**

ft Length of well  
ft - depth to water (before purge start)  
ft = length of water column  
x conversion factor (2" well) 0.49  
Gallons = 3 casing volumes

Yield:  HIGH  LOW  
If low, recovery time: \_\_\_\_\_  
Actual volume purged: \_\_\_\_\_ gallons  
Actual purge flow rate: 250 ml/min or  
Notes: S = 0.04 mg/L Mn = 0.6 mg/L L/min

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start: 1045	40.00	7.03	604	62	1.92	12.10	-86.2		
1050	40.00	7.05	606	28	1.61	12.08	-88.9		
1055	40.00	7.07	607	22	1.42	12.10	-91.2		
1100	40.00	7.08	607	19	1.36	12.13	-91.4		
1105	40.00	7.11	608	16	1.26	12.19	-92.7		
Final:	40.0	7.12	609	15	1.19	12.21	-92.9	1.84	

**SAMPLE COLLECTION**

Date: 10.20.08 Time: 1110 AM/PM Method: 2" BLADDER

Appearance of Sample: CLEAR

Actual sample flow rate: 250 ml/min or  
L/min

SAMPLE BOTTLE(S) COLLECTED: VOC, NA

SAMPLE ID: MW-103\$-102008-JY

**SAMPLING PERSONNEL**

Name: Jordan YANCHULKA

Company: EARTH TECH AECOM

CLIENT: Chrysler  
LOCATION: Rose Township  
PROJECT #: 106686.04

ENTER WELL LOCATION:

RWID

**INSPECTION**

Label on well?	<input checked="" type="radio"/> YES	NO	Is cap locked?	YES	<input type="radio"/> NO
Is reference mark visible?	<input checked="" type="radio"/> YES	NO	Standing water present?	YES	<input type="radio"/> NO
Condition of well:	<u>Okay</u>		Any indication of surface runoff in well?	YES	<input type="radio"/> NO
Weather:			Air Temperature:		

Notes:

RWID - 102008-AM

**STATIC WATER LEVEL JUST PRIOR TO PURGING**

Date: \_\_\_\_\_ Time: AM/PM

Depth to Water: 18.57  
Length of Well: 69.5

Measured with:  ELECTRONIC TAPE  CHALK & STEEL TAPE  
 PRE STEAM CLEANED  DI WATER  OTHER

**WELL PURGING**

Date: 10/20/08 Begin Time: 12:20 PM Purging Equipment: Pervstaltic  
End Time: \_\_\_\_\_ AM/PM Decontamination:  PRE STEAM CLEANED  DI WATER  OTHER

**CALCULATION OF 3 CASING VOLUMES**

ft Length of well  
ft - depth to water (before purge start)  
ft = length of water column  
x conversion factor (2" well) 0.49

Yield: HIGH LOW  
If low, recovery time: \_\_\_\_\_  
Actual volume purged: 3 gallons  
Actual purge flow rate: 200 ml/min or L/min

Gallons = 3 casing volumes  $M_w = \frac{V}{L} = 0.01 \text{ mg/L}$ ,  $0.1 \text{ mg/L}$ ,  $10 = 0.19 \text{ mg/L}$

Notes:

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start:									
10:20	0.018.67	7.94	0.503	2.0	0.87	10.87	-99.9		
12:30	2.0 18.67	7.80	0.506	1.46	0.870	10.07	-76.3		
12:40	2.5 18.60	7.79	0.507	1.46	0.83	10.37	-82.7		
12:45	2.7 18.60	7.79	0.507	1.45	0.81	10.43	-84.9		
Final:	12.55	3 18.60	7.79	0.507	1.44	0.80	10.42	-84.7	

**SAMPLE COLLECTION**

Date: 10/20/08 Time: 12:55 AM/PM Method: Pervstaltic

Appearance of Sample: Clear

Actual sample flow rate: 200 ml/min or L/min

SAMPLE BOTTLE(S) COLLECTED: VOC, NA

**SAMPLING PERSONNEL**

Name: Avtar Mani

Company: AEMG

CLIENT: Chrysler

LOCATION: Rose Township

PROJECT #: 106686.04

ENTER WELL LOCATION:

DNR-7

## INSPECTION

Label on well?	<input checked="" type="checkbox"/>	NO	Is cap locked?	YES	<input checked="" type="checkbox"/>
Is reference mark visible?	<input checked="" type="checkbox"/>	NO	Standing water present?	YES	<input checked="" type="checkbox"/>
Condition of well:	OK		Any indication of surface runoff in well?	YES	<input checked="" type="checkbox"/>
Weather:	P. CLOUDY, BREEZY		Air Temperature:	60°F	
Notes:	SAMPLE ID: DNR7-102008-3Y				

## STATIC WATER LEVEL JUST PRIOR TO PURGING

Date: 10.20.08 Time: 1220 AM/PM

Depth to Water: 36.33  
Length of Well: 81.00Measured with: ELECTRONIC TAPE  
Decontamination: PRE STEAM CLEANED  
CHALK & STEEL TAPE  
 DLWATER OTHER

## WELL PURGING

Date: 10.20.08 Begin Time: 1235 AM/PM Purging Equipment: 2" BLA00GR  
End Time: \_\_\_\_\_ AM/PM Decontamination: PRE STEAM CLEANED  DLWATER OTHER

## CALCULATION OF 3 CASING VOLUMES

$$\begin{aligned} \text{ft} &\quad \text{Length of well} \\ \text{ft} &\quad - \text{depth to water (before purge start)} \\ \text{ft} &\quad = \text{length of water column} \\ &\quad \times \text{conversion factor (2" well)} 0.49 \\ \text{Gallons} &\quad = 3 \text{ casing volumes} \end{aligned}$$

Yield:  HIGH  LOW  
 If low, recovery time: \_\_\_\_\_  
 Actual volume purged: \_\_\_\_\_ gallons  
 Actual purge flow rate: 220 ml/min or  
 L/min

Notes:  $S = 0.40 \text{ mg/L}, M_n = 0.2 \text{ mg/L}$ 

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start: 1255	36.39	7.25	573	76	0.91	10.98	-94.1		
1300	36.39	7.22	575	64	1.07	11.04	-90.1		
1305	36.39	7.18	579	57	1.16	11.29	-86.6		
1310	36.39	7.17	580	56	1.28	11.33	-85.3		
1315	36.39	7.16	582	54	1.29	11.35	-82.1		
1320	36.39	7.14	581	51	1.28	11.36	-81.4	1.88	
Final:									

## SAMPLE COLLECTION

Date: 10.20.08 Time: 1325 AM/PM

Method: 2" BLA00GR

Appearance of Sample: CLEAR

Actual sample flow rate: 220 ml/min or  
L/min

SAMPLE BOTTLE(S) COLLECTED: VOC, NA

## SAMPLING PERSONNEL

Name: JOHN YANKEE

Company: EARTH TECH AECOM

CLIENT: Chrysler  
 LOCATION: Rose Township  
 PROJECT #: 106686.04

ENTER WELL LOCATION: PWL 6

**INSPECTION**

Label on well?	YES	NO	Is cap locked?	YES	NO	
Is reference mark visible?	YES	NO	Standing water present?	YES	NO	
Condition of well:				Any indication of surface runoff in well?	YES	NO
Weather:				Air Temperature:		

Notes:

SAMPLE ID - PWL 6-102008-JY

**STATIC WATER LEVEL JUST PRIOR TO PURGING**

Date: \_\_\_\_\_ Time: AM/PM

Depth to Water:	Measured with:	ELECTRONIC TAPE	CHALK & STEEL TAPE
Length of Well:	Decontamination:	PRE STEAM CLEANED	DI WATER OTHER

**WELL PURGING**

Date: 10.20.08	Begin Time: 1400 AM/PM	Purging Equipment: RUN PUMP
	End Time: _____ AM/PM	Decontamination: PRE STEAM CLEANED DI WATER OTHER

**CALCULATION OF 3 CASING VOLUMES**

ft	Length of well	Yield: HIGH LOW
ft	- depth to water (before purge start)	If low, recovery time: _____
ft	= length of water column	
	x conversion factor (2" well) 0.49	Actual volume purged: _____ gallons
Gallons	= 3 casing volumes	Actual purge flow rate: 118 ml/min

Notes:  $S = 0.00 \text{ mg/L}$ ,  $Mn = 0.2 \text{ mg/L}$   $\text{b/min gal/min}$

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start: 1415	-	-	7.37	584	8	1.73	10.46	-82.9	
1420	-	-	7.33	584	7	1.56	10.47	-81.2	
1425	-	-	7.29	584	6	1.46	10.47	-79.5	
1430	-	-	7.28	583	6	1.39	10.48	-79.8	
1435	-	-	7.26	583	5	1.40	10.49	-78.7	1.24
Final:									

**SAMPLE COLLECTION**

Date: 10.20.08 Time: 1440 AM/PM

Method: PUMPING WELL

Appearance of Sample: CLEAR

Actual sample flow rate: 118 gal/min ml/min

SAMPLE BOTTLE(S) COLLECTED: VOC, NA

**SAMPLING PERSONNEL**

Name: JOHN YANUCHULA

Company: STARTECH AECOM

**CLIENT: Chrysler**  
**LOCATION: Rose Township**  
**PROJECT #: 106686.04**

**ENTER WELL LOCATION:**

PW-4

INSPECTION

**Label on well?** YES NO  
**Is reference mark visible?** YES NO  
**Condition of well:** \_\_\_\_\_  
**Weather:** INSIDE BUILDING  
**Notes:** FA-101-150-10-11

Is cap locked? YES NO  
Standing water present? YES NO  
Any indication of surface runoff in well? YES NO  
Air Temperature:

SAMPLE ID: DW4-102008-JY

## **STATIC WATER LEVEL JUST PRIOR TO PURGING**

**Date:** \_\_\_\_\_ **Time:** \_\_\_\_\_ **AM/PM**

**Depth to Water:** \_\_\_\_\_  
**Length of Well:** \_\_\_\_\_

**Measured with:** ELECTRONIC TAPE      CHALK & STEEL TAPE  
**Decontamination:** PRE STEAM CLEANED      DI WATER      OTHER

## **WELL PURGING**

Date: 10.20.08 Begin Time: 1445 AM/PM Purging Equipment: PUMPING WELL  
End Time:  AM/PM Decontamination: PRE STEAM CLEANED DI WATER OTHER

## CALCULATION OF 3 CASING VOLUMES

- ft      Length of well
- ft      - depth to water (before purge start)
- ft      = length of water column
- ons     x conversion factor (2" well) 0.49
- = 3 casing volumes

Yield:	HIGH	LOW
If low, recovery time:	_____	
Actual volume purged:	_____	gallons
Actual purge flow rate:	118	ml/min or

Notes:  $S = 0.00 \text{ mg/L}$ ,  $Mn = 1.2 \text{ mg/L}$  L/min gal/min

## **SAMPLE COLLECTION**

Date: 10/20/08 Time: 1525AM/PM

Method: IMPACT WELL

Appearance of Sample: CLEAR

Actual sample flow rate: 118 gal/min ml/min or  
L/min

SAMPLE BOTTLE(S) COLLECTED: VOC's / HA

**ANSWER** The answer is 1000. The first two digits of the number 1000 are 10.

#### **SAMPLING PERSONNEL**

Name: TATE YAMADA

Company: ISARTH TECH AECOM

**CLIENT: Chrysler**

**LOCATION: Rose Township**

PROJECT #: 106686-04

**ENTER WELL LOCATION:**

PW-1

## **INSPECTION**

**Label on well?** YES NO  
**Is reference mark visible?** YES NO  
**Condition of well:** \_\_\_\_\_  
**Weather:** \_\_\_\_\_

Is cap locked?	YES	NO
Standing water present?	YES	NO
Any indication of surface runoff in well?	YES	NO
Air Temperature:		

Notes: SAMPLE ID: PWI-102008-JY AND PWI MS/MSD-102008-JY

## **STATIC WATER LEVEL JUST PRIOR TO PURGING**

**Date:** \_\_\_\_\_ **Time:** \_\_\_\_\_ **AM/PM**

**Depth to Water:** \_\_\_\_\_  
**Length of Well:** \_\_\_\_\_

**Measured with:** ELECTRONIC TAPE      **CHALK & STEEL TAPE**  
**Decontamination:** PRE STEAM CLEANED      DI WATER      OTHER

## **WELL PURGING**

Date: 10/20/08 Begin Time: 1530 AM/PM Purging Equipment: PUMP IN R WELL  
End Time: \_\_\_\_\_ AM/PM Decontamination: PRE STEAM CLEANED DI WATER OTHER

## CALCULATION OF 3 CASING VOLUMES

~~ft~~ Length of well  
~~ft~~ - depth to water (before purge start)  
~~ft~~ = length of water column  
x conversion factor (2" well) 0.49

**Yield:** **HIGH** **LOW**

If low, recovery time:

Actual volume purged: \_\_\_\_\_ gallons  
Actual purge flow rate: 125 ml/min or  
L/min gal/min

Notes:  $S = 0.00 \text{ mg/L}$ , Mn:  $0.0 \text{ mg/L}$  L/min gal/min

DO WILL NOT STABILIZE DUE TO TURBULENTS IN BUCKET

## **SAMPLE COLLECTION**

Date: 10-20-02 Time: 1620 AM/PM

Method: pumpkins well

Appearance of Sample: CLEAR

SAMPLE BOTTLE(S) COLLECTED: VOC's, NA

#### **SAMPLING PERSONNEL**

Name: Tony Yanchik

Company: LEARTH TECH AECOM

CLIENT: Chrysler  
LOCATION: Rose Township  
PROJECT #: 106686.04

ENTER WELL LOCATION: DNR 1

INSPECTION

Label on well?	<input checked="" type="checkbox"/> YES	NO	Is cap locked?	YES	<input checked="" type="checkbox"/> NO
Is reference mark visible?	YES	<input checked="" type="checkbox"/> NO	Standing water present?	YES	<input checked="" type="checkbox"/> NO
Condition of well:	OK		Any indication of surface runoff in well?	YES	<input checked="" type="checkbox"/> NO
Weather:	Rainy		Air Temperature:		

Notes:

DNR 1 - 102008-0401 & FBI-102008-AM

STATIC WATER LEVEL JUST PRIOR TO PURGING

Date: 10/20/08 Time: 3:45 AM/PM

Depth to Water: \_\_\_\_\_  
Length of Well: \_\_\_\_\_

Measured with: ELECTRONIC TAPE  
Decontamination: PRE STEAM CLEANED CHALK & STEEL TAPE  
 DI WATER OTHER

WELL PURGING

Date: 10/20/08	Begin Time: 3:45 AM/PM	Purging Equipment: None
	End Time: 4:25 AM/PM	Decontamination: PRE STEAM CLEANED <input checked="" type="checkbox"/> DI WATER OTHER

CALCULATION OF 3 CASING VOLUMES

ft Length of well

Yield: HIGH LOW

ft - depth to water (before purge start)

If low, recovery time: \_\_\_\_\_

ft = length of water column

Actual volume purged: 8 gallons

x conversion factor (2" well) 0.49

Actual purge flow rate: 200 ml/min or

Gallons = 3 casing volumes

L/min

Notes:

S = 0.0 mg/L Fe = 2.2 mg/L Mn = 0.7 mg/L

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start:									
3:50			7.90	0.509	245	5.05	10.53	-135.1	
3:55			7.76	0.507	225	2.66	10.13	-135.3	
4:00			7.61	0.502	34.2	1.37	9.83	-117.8	
4:05			7.59	0.502	15.1	1.22	9.82	-112.0	
4:12			7.56	0.502	5.22	1.08	9.80	-107.8	
			7.56	0.502	8.12	1.03	9.78	-105.9	
Final: 4:25			7.56	0.501	8.0	1.02	9.77	-106.0	

SAMPLE COLLECTION

Date: 10/20/08 Time: 4:30 AM/PM Method: \_\_\_\_\_

Appearance of Sample: Clear

Actual sample flow rate: 200 ml/min or  
L/min

SAMPLE BOTTLE(S) COLLECTED: VOC, NA

SAMPLING PERSONNEL

Name: AVTAR MANGAT

Company: AEMG

CLIENT: Chrysler  
LOCATION: Rose Township  
PROJECT #: 106686.04

ENTER WELL LOCATION:

DW-3

**INSPECTION**

Label on well?	YES	NO	Is cap locked?	YES	NO
Is reference mark visible?	YES	NO	Standing water present?	YES	NO
Condition of well:			Any indication of surface runoff in well?	YES	NO
Weather:			Air Temperature:		

Notes:

SAMPLE ID: DW3-102008

**STATIC WATER LEVEL JUST PRIOR TO PURGING**

Date: \_\_\_\_\_ Time: \_\_\_\_\_ AM/PM

Depth to Water:	Measured with:	ELECTRONIC TAPE	CHALK & STEEL TAPE
Length of Well:	Decontamination:	PRE STEAM CLEANED	DI WATER OTHER

**WELL PURGING**

Date: 10.20.08	Begin Time: 1630	AM/PM	Purging Equipment: PUMPING WELL
	End Time: _____	AM/PM	Decontamination: PRE STEAM CLEANED DI WATER OTHER

**CALCULATION OF 3 CASING VOLUMES**

ft Length of well  
ft - depth to water (before purge start)  
ft = length of water column  
x conversion factor (2" well) 0.49

Gallons = 3 casing volumes

Yield: HIGH LOW

If low, recovery time: \_\_\_\_\_

Actual volume purged: \_\_\_\_\_ gallons

Actual purge flow rate: 64 ml/min or

U/min gal/min

Notes: S=0.01 mg/L, Mn: 1.6 mg/L

DO will not stabilize due to turbulents in bucket

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start: 1640	-	-	7.16	592	1	1.27	10.24	-98.0	
1645	-	-	7.17	595	1	1.02	10.24	-101.8	
1650	-	-	7.17	597	1	0.91	10.24	-104.0	
1655	-	-	7.17	598	1	0.80	10.24	-104.9	
1700	-	-	7.18	599	1	0.69	10.24	-105.3	4.14 (x2)
Final:									

**SAMPLE COLLECTION**

Date: 10.20.08 Time: 1705 AM/PM

Method: PUMPING WELL

Appearance of Sample:

CLEAR

Actual sample flow rate: 64 gal/min

SAMPLE BOTTLE(S) COLLECTED:

100's, NA

**SAMPLING PERSONNEL**

Name: John Yantella

Company: GARTH TEC ECOM

CLIENT: Chrysler

LOCATION: Rose Township

PROJECT #: 106686.04

ENTER WELL LOCATION:

Pw8 - 8

## INSPECTION

Label on well?	YES	NO	Is cap locked?	YES	NO
Is reference mark visible?	YES	NO	Standing water present?	YES	NO
Condition of well:			Any indication of surface runoff in well?	YES	NO
Weather:			Air Temperature:		
Notes:					

Pw8 STARTED AT 0750 - SAMPLE ID: Pw8-102108-JY

## STATIC WATER LEVEL JUST PRIOR TO PURGING

Date: 10.21.08 Time: AM/PM

Depth to Water:	Measured with:	ELECTRONIC TAPE	CHALK & STEEL TAPE
Length of Well:	Decontamination:	PRE STEAM CLEANED	DI WATER OTHER

## WELL PURGING

Date: 10.21.08	Begin Time: 0805	AM/PM	Purging Equipment: PUMPING WELL
	End Time: 0750	AM/PM	Decontamination: PRE STEAM CLEANED DI WATER OTHER

## CALCULATION OF 3 CASING VOLUMES

ft	Length of well	Yield: <input checked="" type="checkbox"/> HIGH <input type="checkbox"/> LOW
ft	- depth to water (before purge start)	If low, recovery time:
ft	= length of water column	
	x conversion factor (2" well) 0.49	Actual volume purged:
Gallons	= 3 casing volumes	Actual purge flow rate: 20 ml/min or gal/min
Notes:	S = 0.11 mg/L, Mn = 0.4 mg/L	

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU) +/- 0.1	Conductivity (umhos/cm) +/- 3%	Turbidity (NTU) +/- 10%	D.O. (mg/L) +/- 10%	Temp (°C) +/- 5°	ORP +/- 10 mV	Ferrous Iron (mg/L)
Start: 0825	-	-	7.13	662	25	3.43	11.79	-43.9	
0830			7.10	662	21	3.21	11.84	-44.3	
0835			7.07	667	20	3.12	11.89	-40.9	
0840			7.05	669	19	2.83	11.93	-36.5	0.51
Final:									

## SAMPLE COLLECTION

Date: 10.21.08 Time: 0845 AM/PM Method: PUMPING WELL

Appearance of Sample: CLEAR

Actual sample flow rate: 20 ml/min or gal/min

SAMPLE BOTTLE(S) COLLECTED: Pw8-102108-JY

## SAMPLING PERSONNEL

Name: John YANCHULA

Company: EARTH TECH AECOM

CLIENT: Chrysler  
LOCATION: Rose Township  
PROJECT #: 106686.04

ENTER WELL LOCATION:

MW1-109

**INSPECTION**

Label on well?	YES	NO	Is cap locked? NO CAP	YES	NO
Is reference mark visible?	YES	NO	Standing water present?	YES	NO
Condition of well:	OK		Any indication of surface runoff in well?	YES	NO
Weather:	SD°F, P. CLOUDY, BREEZY		Air Temperature:		
Notes:	SAMPLE ID: MW109D-102108-JY				

**STATIC WATER LEVEL JUST PRIOR TO PURGING**

Date: 10.21.08 Time: 0935 AM/PM

Depth to Water:	44.50 ft	Measured with:	ELECTRONIC TAPE	CHALK & STEEL TAPE
Length of Well:	149.00 ft	Decontamination:	PRE STEAM CLEANED	D/WATER OTHER

**WELL PURGING**

Date: 10.21.08	Begin Time: 0945 AM/PM	Purging Equipment: 2" BLADDER
	End Time: _____ AM/PM	Decontamination: PRE STEAM CLEANED D/WATER OTHER

**CALCULATION OF 3 CASING VOLUMES**

ft	Length of well	Yield: HIGH LOW
ft	- depth to water (before purge start)	If low, recovery time: _____
ft	= length of water column	
	x conversion factor (2" well) 0.49	Actual volume purged: _____ gallons
Gallons	= 3 casing volumes	Actual purge flow rate: _____ ml/min or L/min
Notes:	$S = 0.77 \text{ mg/L}, M_1 = 0.7 \text{ mg/L}$	

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start: 1015	-	44.51	7.21	591	48	1.24	9.51	-39.2	
1020	-	44.51	7.29	591	48	1.18	9.50	-72.1	
1025	-	44.51	7.33	593	50	1.09	9.43	-79.6	
1030	-	44.51	7.34	594	50	1.05	9.40	-81.1	0.98
Final:									

**SAMPLE COLLECTION**

Date: 10.21.08 Time: 1035 AM/PM Method: 2" BLADDER

Appearance of Sample: CLEAR Actual sample flow rate: 270 ml/min or L/min

SAMPLE BOTTLE(S) COLLECTED: VOC, NA

**SAMPLING PERSONNEL**

Name: JOHN YANCIKUL

Company: EARTH TECH AECOM

CLIENT: Chrysler  
LOCATION: Rose Township  
PROJECT #: 106686.04

ENTER WELL LOCATION: MW-108D

**INSPECTION**

Label on well?	<input checked="" type="checkbox"/> YES	NO	Is cap locked?	<input checked="" type="checkbox"/> NO CAP	YES	NO
Is reference mark visible?	<input checked="" type="checkbox"/> YES	NO	Standing water present?	<input checked="" type="checkbox"/> YES	YES	NO
Condition of well:	O.K.			Any indication of surface runoff in well?	<input checked="" type="checkbox"/> YES	NO
Weather:	P. CLOUDY, BREEZY			Air Temperature:	50°F	

Notes: SAMPLE ID: MW 108D-102108-3Y

**STATIC WATER LEVEL JUST PRIOR TO PURGING**

Date: 10.21.08 Time: 1125 AM/PM

Depth to Water:	49.72 ft	Measured with:	STRONG TAPE	CHALK & STEEL TAPE
Length of Well:	65.00 ft	Decontamination:	PRE STEAM CLEANED	DI WATER OTHER

**WELL PURGING**

Date: 10.21.08	Begin Time: 1135	AM/PM	Purging Equipment: 2" BLADDER
	End Time:	AM/PM	Decontamination: PRE STEAM CLEANED

**CALCULATION OF 3 CASING VOLUMES**

ft	Length of well	Yield: <input checked="" type="checkbox"/> HIGH <input type="checkbox"/> LOW
ft	- depth to water (before purge start)	If low, recovery time:
ft	= length of water column	
	x conversion factor (2" well) 0.49	Actual volume purged: _____ gallons
Gallons	= 3 casing volumes	Actual purge flow rate: _____ ml/min or
	S = 1.80 mg/L, Mn = 0.7 mg/L	L/min

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
Start: 1205	49.80	6.87	515	225	0.75	9.75	264.7		
1210	49.80	6.95	530	218	0.75	9.75	195.4		
1215	49.80	7.01	550	195	0.74	9.74	141.9		
1220	49.80	7.02	554	192	0.74	9.74	136.4		
1225	49.80	7.05	560	180	0.74	9.71	129.5		1.41
Final:									

**SAMPLE COLLECTION**

Date: 10.21.08 Time: 1230 AM/PM Method: 2" BLADDER

Appearance of Sample: CLOUDY

Actual sample flow rate: 180 ml/min or L/min

SAMPLE BOTTLE(S) COLLECTED: VOC's, NA

**SAMPLING PERSONNEL**

Name: TOTH YANCHEA

Company: LEADTECH

CLIENT: Chrysler

LOCATION: Rose Township

PROJECT #: 106686.04

ENTER WELL LOCATION: CWL-121

## INSPECTION

Label on well?

 YES  
 YES

NO

Is cap locked?

YES

 NO  
 NO

Is reference mark visible?

Standing water present?

YES

Condition of well:

OK

Any indication of surface runoff in well?

YES

 NO  
 NO

Weather:

P. CLOUDY, BREEZY

Air Temperature:

50°

Notes:

SAMPLE ID

## STATIC WATER LEVEL JUST PRIOR TO PURGING

Date: 10.21.08 Time: 1313 AM/PM

Depth to Water: 30.54 ft

Measured with:

ELECTRONIC TAPE

CHALK &amp; STEEL TAPE

Length of Well: 143.00 ft

Decontamination:

PRE STEAM CLEANED

DI WATER

OTHER

AFTER PUMP AND TUBING ADDED WATER LEVEL 29.67

## WELL PURGING

Date: 10.21.08

Begin Time: 1330 AM/PM

Purging Equipment: 2" BLADDER

End Time: \_\_\_\_\_ AM/PM

Decontamination:

PRE STEAM CLEANED

DI WATER

OTHER

## CALCULATION OF 3 CASING VOLUMES

ft Length of well

Yield:  HIGH  LOW

ft - depth to water (before purge start)

If low, recovery time: \_\_\_\_\_

ft = length of water column

Actual volume purged: \_\_\_\_\_ gallons

x conversion factor (2" well) 0.49

Actual purge flow rate: \_\_\_\_\_ ml/min or

Gallons = 3 casing volumes

L/min

Notes: S = 0.08 mg/L, MN = 1.1 mg/L

\*JY HAD TO LEAVE TO FIX PROBLEM IN PUMP ROOM

Time	Volume (gallons)	Depth to Water (feet) <0.33'	pH (SU)	Conductivity (umhos/cm)	Turbidity (NTU)	D.O. (mg/L)	Temp (°C)	ORP	Ferrous Iron (mg/L)
start: 1405	-	30.09	10.75	217	52	1.59	10.40	-68.4	
1410	-	30.09	10.74	207	52	1.35	10.39	-45.0	
* 1435	-	30.09	9.39	220	55	1.08	10.14	323.9	
1440	-	30.09	9.10	253	55	1.01	10.20	406.3	
1445	-	30.09	8.96	275	38	1.03	10.16	437.2	
1450	-	30.09	8.70	314	26	0.99	10.23	477.1	
1455	-	30.09	8.53	350	19	1.01	10.27	521.1	
1500	30.09	8.31	380	21	1.02	10.34	569.7		
1505	30.09	8.09	408	22	1.07	10.32	610.3		
1510	30.09	8.00	421	21	1.02	10.32	635.4		
Final: 1515	30.09	7.95	431	20	1.04	10.32	650.2	0.29	

## SAMPLE COLLECTION

Date: 10.21.08

Time: 1520 AM/PM

Method: 2" BLADDER

Appearance of Sample:

CLEAR

Actual sample flow rate: \_\_\_\_\_ ml/min or  
L/min

SAMPLE BOTTLE(S) COLLECTED:

10C's, NA

## SAMPLING PERSONNEL

Name: JOHN YANCHULA

Company: EARTH TECH AECOM

**Appendix B**



**Appendix C**  
**Summary of Operating Flow Data**  
**Groundwater Extraction and Treatment System**  
**Rose Township Demode Road Site**  
**Oct-08**

*Cumulative Totalizer Readings, Units as Given*

Date	PW-4				PW-1				PW-6				PW-7				PW-8				PW-3				SVE		INFLUENT	
	TOTAL	(gallons)	Hours of Operation	% Operation	TOTAL	(gallons)	Hours of Operation	% Operation	TOTAL	(gallons)	Hours of Operation	% Operation	TOTAL	(gallons)	Hours of Operation	% Operation	TOTAL	(gallons)	Hours of Operation	% Operation	TOTAL	(gallons)	Hours of Operation	% Operation	TOTAL	(gallons)	TOTAL	(gallons)
10/1/2008		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	0	0	0	0	0	0	0	0
10/2/2008		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	0	0	0	0	0	0	0	0
10/3/2008		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	0	0	0	0	0	0	0	0
10/4/2008		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	0	0	0	0	0	0	0	0
10/5/2008		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	0	0	0	0	0	0	0	0
10/6/2008	OFF	0	0	0	OFF	0	0	0	OFF	0	0	0	OFF	0	0	0	OFF	0	0	0	OFF	0	0	0	OFF	0	0	0
10/7/2008		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	0	0	0	0	0	0	0	0
10/8/2008		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	0	0	0	0	0	0	0	0
10/9/2008		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	0	0	0	0	0	0	0	0
10/10/2008		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	0	0	0	0	0	0	0	0
10/11/2008		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	0	0	0	0	0	0	0	0
10/12/2008		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	0	0	0	0	0	0	0	0
10/13/2008	287,170,000	69,286	24	100	68,062,000	175,000	24	100	336,152,000	164,429	24	100		0	0	0		0	0	0	291,737,000	88,714	24	100	278,860	0	1,540,201,000	539,429
10/14/2008		69,286	24	100		175,000	24	100		164,429	24	100		0	0	0		0	0	0		88,714	24	100		0	0	539,429
10/15/2008		69,286	24	100		175,000	24	100		164,429	24	100		0	0	0		0	0	0		88,714	24	100		0	0	539,429
10/16/2008		69,286	24	100		175,000	24	100		164,429	24	100		0	0	0		0	0	0		88,714	24	100		0	0	539,429
10/17/2008		69,286	24	100		175,000	24	100		164,429	24	100		0	0	0		0	0	0		88,714	24	100		0	0	539,429
10/18/2008		69,286	24	100		175,000	24	100		164,429	24	100		0	0	0		0	0	0		88,714	24	100		0	0	539,429
10/19/2008		69,286	24	100		175,000	24	100		164,429	24	100		0	0	0		0	0	0		88,714	24	100		0	0	539,429
10/20/2008	287,645,000	67,714	24	100	69,263,000	155,286	24	100	337,283,000	146,429	24	100	128,272,000	0	0	0	109,079,000	0	0	0	292,347,000	67,143	24	100	278,784	0	1,543,906,000	479,571
10/21/2008		67,714	24	100		155,286	24	100		146,429	24	100		0	0	0		0	0	0		67,143	24	100		0	0	479,571
10/22/2008		67,714	24	100		155,286	24	100		146,429	24	100		0	0	0		0	0	0		67,143	24	100		0	0	479,571
10/23/2008		67,714	24	100		155,286	24	100		146,429	24	100		0	0	0		0	0	0		67,143	24	100		0	0	479,571
10/24/2008		67,714	24	100		155,286	24	100		146,429	24	100		0	0	0		0	0	0		67,143	24	100		0	0	479,571
10/25/2008		67,714	24	100		155,286	24	100		146,429	24	100		0	0	0		0	0	0		67,143	24	100		0	0	479,571
10/26/2008		67,714	24	100		155,286	24	100		146,429	24	100		0	0	0		0	0	0		67,143	24	100		0	0	479,571
10/27/2008	288,119,000	75,000	24	100	70,350,000	166,333	24	100	338,308,000	152,333	24	100	128,272,000	0	0	0	110,000,000	0	0	0	292,817,000	66,667	24	100	278,784	0	1,547,263,000	507,667
10/28/2008		75,000	24	100		166,333	24	100		152,333	24	100		0	0	0		0	0	0		66,667	24	100		0	0	507,667
10/29/2008		75,000	24	100		166,333	24	100		152,333	24	100		0	0	0		0	0	0		66,667	24	100		0	0	507,667
10/30/2008		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	0	0	0	0
10/31/2008		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	0	0	0	0
<b>MONTHLY TOTAL</b>		<b>1,184,000</b>				<b>2,811,000</b>				<b>2,633,000</b>				<b>0</b>				<b>0</b>				<b>1,291,000</b>				<b>0</b>		<b>8,656</b>